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A REPORT OF PROGRESS ON

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THE MASSACHUSETTS HIGHWAY PROGRAM

FALL
1962

MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS
JACK P. RICCIARDI
COMMISSIONER

UNIVERSITY OF MASSACHUSETTS
LIBRARY

His Excellency

ENDICOTT PEABODY

Governor

VF Massachusetts . Dept. of

FOREWORD

This report is a summation of the Department's program of continued progress, covering the period from October 1961 to October 1962, for all phases of Departmental activities.

As in the past, it shows a steady advance of design and construction, in the planned program of the Interstate and Defense Highway System within the Commonwealth, as well as heartening accomplishments in our Primary, Secondary, and Urban Federal-Aid highway systems.

In addition to the progress reports on major highway construction throughout the state, the report covers Divisional Activities, including the Waterways and Beaches Division. In each case only a brief summary is possible.

It should be noted that the section of this report marked "Innovations" reflects the continuing policy of the Department to introduce new methods, techniques and practices wherever and whenever possible and practicable.

And finally, this report again outlines the goals we have set for attainment in the future months and years that lie ahead.

I am proud to offer this report to you as a record of the loyal and outstanding service of the employees of this Department.

Jack P. Ricciardi, Commissioner
Massachusetts Department of Public Works

JACK P. RICCIARDI

Commissioner

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table of contents

Progress Report 2

New Projects 4

What's In The Future 11

Federal Aid 18

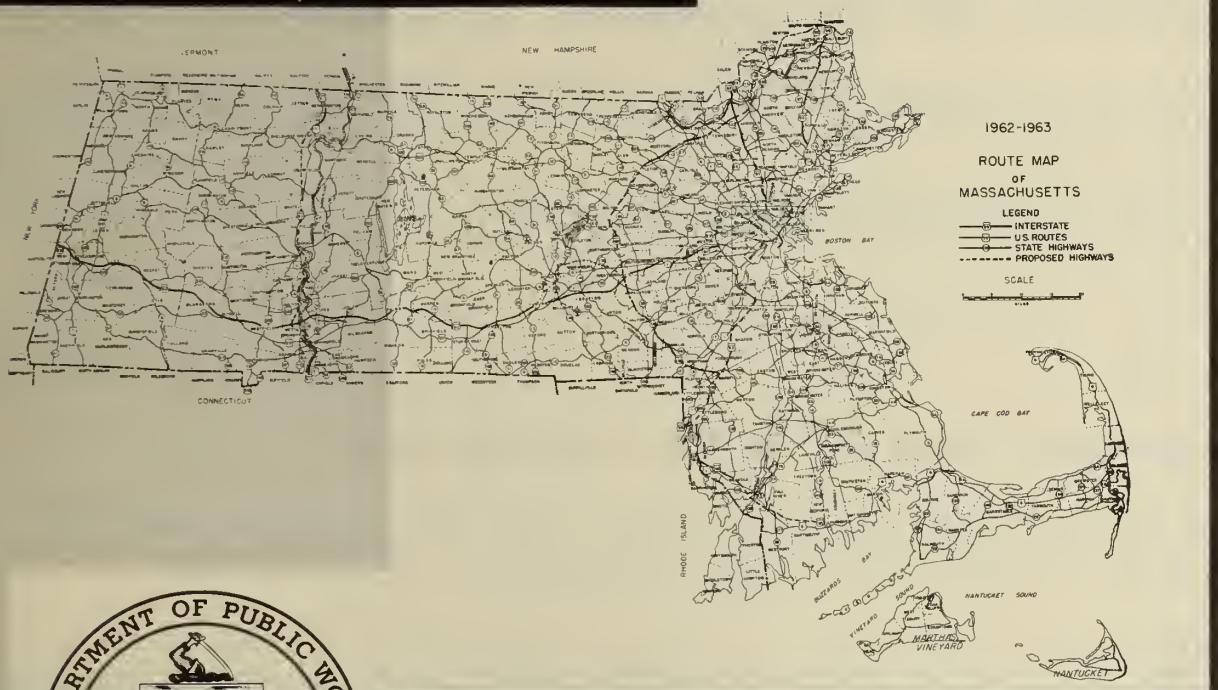
Interstate Highways 22

The ABC Highways 53

Chapters 90 and 81 68

Other Department Activities 74

Waterways and Beaches 94



DEPARTMENT OF PUBLIC WORKS
MASSACHUSETTS
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the highway story . . .

In this modern world, highways have become the principal arteries of commerce and transportation. In such a highly industrial and densely populated state as Massachusetts, with many great cities, good highways are even more imperative to maintain a favorable competitive position. Raw materials, finished products, and people must be moved swiftly, easily, and safely. Modern highways hold the key to prosperity.

progress report

progress on interstate system

During this past year, over 60 miles of Interstate Highways were under construction or completed. This represents a marked increase over the preceding year. In addition approximately 160 miles are under design or study.

A. U.S. Bureau of Public Roads Report shows that Massachusetts is 24th among the 50 states in advancing completion of the Interstate and Defense Highway System.

progress on a b c systems

The total mileage of ABC highways (Primary, Secondary, and Urban highways) completed as new construction, relocation, or reconstruction, from October 1, 1961 to October 1, 1962, was 43.3 miles. An additional 45.4 miles are under construction.

Notable advances in ABC progress included the virtual completion of the Route 113 relocation in Methuen, an important part of the Lawrence Expressway loop; the Lowell Connector; a vital section of the Fall River Western Expressway; a section of relocated expressway Route 57 in Agawam; an additional 2.3 miles of the Horseneck Beach Road connecting to U.S. Route 6 in Westport; and the continuation of reconstruction in the widening of Route 128 from Route 1 at the Lynnfield-Peabody line to Route 9 at the Needham-Wellesley line. At present all sections of Route 128 are completed, under construction, or are awaiting the awarding of bids.

The Commonwealth is 14th in United States in utilizing available funds on the Federal-Aid Primary, Secondary and Urban road system.

review of department achievements in 1962

During the period of October 1, 1961 to October 1, 1962, the Department of Public Works awarded highway construction projects totalling about $65,700,000.

On October 1, 1962, the Department carried the following summary of major highway construction.

	Number	Miles	Bid Cost
Projects under construction	90	102.5	$129,915,403.48
Projects awarded-pending start	11	5.6	10,246,335.30
Projects bids received award pending	6	3.4	4,039,929.45
Projects advertised pending opening of bids	10	7.5	8,817,141.65
	117	119.0	$153,018,809.88

"sharing the knowledge"

PROVIDING SERVICES FOR THE MOTORISTS
Highway Highlights
Parley on State-Local Cooperatic
Closer Working Relationship For Officials Urged at Bay State Meet
What's Going On
Legislation

highway conferences

After the solid achievements of the first Highway Conference of city, town and county highway officials in May of 1961, the Department has made such conferences a semi-annual fixture.

In October of 1961, the second conference was held at the University of Massachusetts at Amherst. At this meeting, general questions on construction, highway maintenance and snow & ice control and other problems relating to highways, were raised by the participants.

At the third Highway Conference at the University of Massachusetts Field Station in Waltham, the morning session was devoted to prepared papers and the afternoon session devoted to general questions. This appears to have struck the happy and fruitful formula that will govern future conferences.

A fourth Highway Conference was scheduled for October 24, 1962 at Lowell Technological Institute.

uniform traffic & pedestrian control conferences

Following enactment by the Massachusetts Legislature of the so-called Anti-Jaywalking bill in 1962, the Department scheduled a series of conferences for officials of all cities and towns in the state concerned with this law.

Combining a presentation of the features of the new Uniform Code of Traffic Control Devices, and its implications for all local communities, with an explanation of the terms of the new Pedestrian Control law, Conferences were scheduled for every District in the state during the month of July.

A team of DPW traffic specialists, headed by Commissioner Ricciardi and Traffic Engineer Bernard Twombley at each of nine conferences, discussed the new "Walk, Don't Walk" traffic control lights, the procedure and regulations pertaining thereto, the mandatory use of yellow paint for barrier lines, and other changes to be adopted under the Uniform Code.

It is estimated that over 1200 local elected officials, highway administrators, and law enforcement officers attended the Conferences, and received a first hand explanation of the new code and demonstration of new devices. Changes in present devices and procedures are required to conform with the new code.

new projects

and special activities in 1962

The Department continued its policy of improvements and innovations in every area of its operation. New methods, new techniques, new materials, new equipment...wherever an opportunity to improve, to save time, or to save costs presented itself, it was considered. If the change merited adoption, it became a part of standard operation. These innovations and new standards reached into every Division of the Department. A few are listed herewith.

New Equipment has been installed for the microfilming of records. In addition to a saving in storage space, the new equipment will permit duplication of microfilm libraries for the decentralization of vital plans and records to the Districts to preserve in case of disaster.

RIGHT-OF-WAY SECTION

Increased coordination of the various functions and procedures of the Right-of-Way, Conveyancing and Layout Divisions is being achieved as the result of the appointment of an Assistant Chief Engineer for Right-of-Way Acquisition.

The Department has established a new and more stringent set of qualification requirements for Outside Fee Appraisers including the submission of a detailed experience record.

During the past year, training courses covering the latest appraisal techniques were conducted for the benefit of the Right-of-Way Personnel and the Department.

Conveyancers - title examiners of property taken for the highway program - are subject to additional requirements before acceptance by the Department. Outside conveyancers who are paid on a fee based on per title examined, are required to be members of the Massachusetts Bar for a specific period. References from banks and corporations are necessary if they are not approved examiners of the Massachusetts Land Court. A new list of acceptable conveyancers has been compiled.

There has been created within the Right-of-Way Division a Review Appraiser Section Unit. This Unit carefully examines all staff and fee appraisals to insure the adequate documentation and soundness of the valuation and sets a Review Appraiser Value for every taking made by the Department.

On September 24, 1962 the Department established Relocation Advisory Assistance Group within the Right-of-Way Division. This group will cooperate with heads of local municipalities and housing assistance groups and othe agencies to help in the relocation problems encountered by persons who will be displaced as a result of highway construction.

All persons, families and business firms affected by the proposed highway program will be advised of the services this group will be able to render. The group will also advise heads of municipalities as to area and properties to be affected, as the plans are sufficiently developed to ascertain the extent of necessary takings.

CONSTRUCTION DIVISION

Contractors are now required to certify, in writing, that work for which they are being paid on an estimate in question, has in fact been done. The following statement appears on the face of the estimate, and must be signed by a duly authorized member of the contracting firm:

"I hereby certify, under the pains and penalties of perjury, that all estimated quantities of contract items and all work for which payment is hereby requested have been performed".

MAINTENANCE SECTION

The first of the new Highway Information booths made its appearance on Route 128 in Dedham. The attractive booth pinpoints a traveler's present position, shows him a statewide highway map, gives him exit numbers and directions, and gives him points of interest in the direction of his travel. More of those booths will be in operation before the next tourist season begins.

MASS TRANSPORTATION STUDY

The Department is currently participating in a most important project that seeks to find answers to transportation problems for the 144 communities that ring Boston, roughly within the Outer Belt line.

$2,400,000 has been earmarked for the study, under the joint direction of the DPW, the U.S Bureau of Public Roads, the Mass. Transportation Commission, and the Housing and Home Finance Agency.

The study, which will conduct more than a half million home and roadside interviews within the 2000 square mile area, will determine the integrated transportation needs of millions of people. Only as a result of such cooperative effort can the transportation problems of the area be resolved.

WATERWAYS DIVISION

The so-called "Open-End" consultant contracts have been discontinued in the Division. A limit specifying the maximum ceiling is now included in the contract. The result: a more positive check on funds expended for consulting engineering services.

To consolidate Department records, the Highway Division now investigates the low bidder of all Waterways Divisi on contracts, and submits a written report with recommendations relative to an award.

A new type of travel-trash collection receptacle was introduced which not only has a larger capacity and therefore aids in keeping rest areas clean, but also facilitates collection. The receptacles are lifted automatically into packer-type tracks, washed and disinfected, and returned to the ground.

New equipment, purchased by the Department, affords greater automation, combining speed, efficiency, at a lower cost, and a marked saving of personnel hours. Included in this groupd are new-type rubber tired rollers for road maintenance; 4-wheel drive Front End Loaders with snow-blower attachments, and a tower truck. A vacuum street sweeper, also added, is capable of sweeping a million square feet of roadway every hour, at speeds up to 25 miles per hour. There is no dust hazard. Special hoses are used for gutters in tunnels and on the arterial highways.

CONTRACT SECTION

As noted in last year's report, legislation has been enacted requiring the prequalification of contractors bidding on work estimated at $50,000 or more. All such contractors will be obliged to file a financial statement, an inventory of equipment, and other pertinent data. They will then receive a Maximum Capacity Rating which will determine the maximum dollar value of contracts on which they will be eligible to bid.

A time lapse of nearly a week will be saved by the Department in the processing of low bids by the inclusion of an affidavit with the bid proposals rather than the present method of post qualifying the low bidder after bid openings.

The effective date is March 29, 1963.

CIVIL DEFENSE AND SAFETY

Representing Department headquarters and all eight districts, 27 DPW personnel completed a full-week course in Radiological Monitoring for Instructors at the Training Center in Brooklyn. On their return each became instructor for courses to others in their respective offices and Districts in methods of detecting radiation, and operating under conditions which might follow a nuclear attack.

The department's natural disaster plan is being completely revised with particular emphasis focused on the current status of department-owned equipment in each district along with the inventory of municipal and contractor-owned equipment by districts which can be used in an emergency.

ENGINEERING ELECTRONIC COMPUTER SECTION

Many sections of the Department of Public Works are taking advantage of the newly completed programs for the 1620 computer. Some programs are the Lambert Conformal Conic Projection Computation, traffic count weekly summary from the Fisher-Porter Translator, and the Asphalt Bid Program. Minor additions to COGO, The coordinate geometry program, have added such flexibility to this versatile program that new applications for this system are appearing regularly. A new program for Computing Volumetric Quantities will be of use to several divisions.

DESIGN DIVISION

Incorporated in all new projects as well as a dozen now under construction, is a pavement of increased thickness. This move was initiated to provide a more durable road thus decreasing future maintenance costs.

A progress chart of all projects from the time of advertising for bids to the date construction actually starts has been instituted. A glance at the chart will indicate its progress, through the various stages of approval, receipt of insurance and other bonds, to the actual starting of contracts.

BRIDGE SECTION

The Bridge Division is using bearing pads of neoprene, a rubber-like synthetic material, on a trial basis on a small number of bridges. These bearings, suitable for certain conditions, are more economical than the steel bearings commonly used.

To eliminate icing conditions on bridges, after a rapid drop in temperature, a material called polyurethane foam has been applied to the underside of a bridge deck as an experiment. This foam is an insulating material of spongy texture which when applied to the steel members and bottom of the concrete slab will prevent to a considerable extent the transfer of cold air currents circulating below the bridge upward through the deck which causes this dangerous ice condition on the surface of the bridge. If the experiment proves successful, its general use on bridges in locations where this icing condition is prevalent would be an invaluable safety measure.

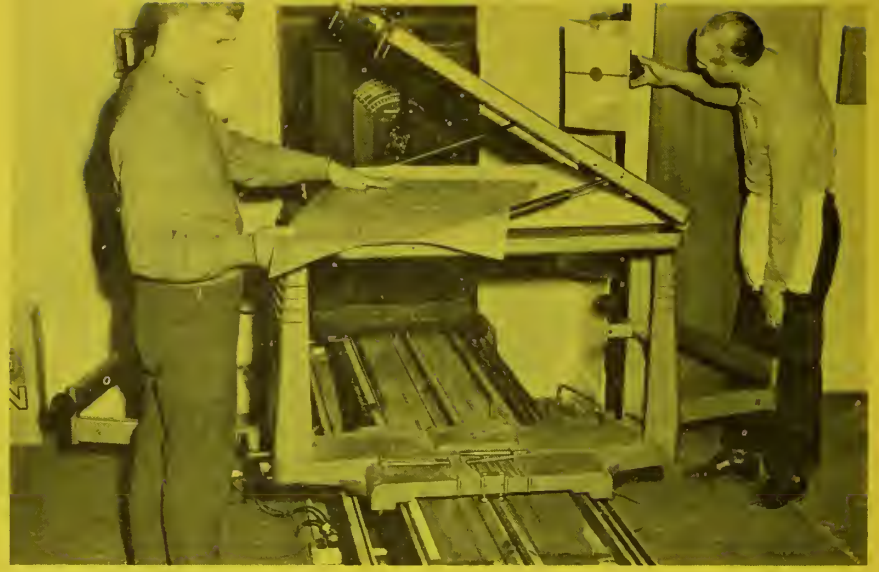
Epoxy resins are also being used, both as an inexpensive protective coating for concrete exposed to the action of river currents and as an adhesive joining the old concrete of existing slabs with new concrete making the slab thicker, thereby accommodating the heavier loading of today's highway traffic.

BEACHES

A mechanized Litter-lift, a vehicle which literally sifts sand and cleans the beach areas. is in operation at the Department's largest beaches. This operation results in a cleaner beach, through the removal of glass or other solid objects under the surface, with resultant saving of man-hours.

REPRODUCTION SECTION

The Department installed new equipment for the high-speed duplication of contract plans and other documents. This equipment will serve all sections as a time, labor and cost saver. Also installed is a duplicator capable of printing both sides of letter and legal size sheets in one operation.



TRAFFIC SECTION

Forty new digital traffic counting devices are now in full operation throughout the state. These devices record traffic counts on tape which are transferred to IBM cards and summarized in a very short time, as compared to the long delays under the old system. In addition, a number of overhead devices, which can analyze traffic by lane use, have been tried out. These include, radar detectors, infra-red detectors, and ultra-sonic devices. Use of these devices is still in the experimental stage.

Painted lane lines on limited access highways have been widened from four to six inches. In addition, in accordance with the National Manual on Uniform Traffic Control Devices, barrier lines on three-lane highways, and dual center lines on four-lane highways, have been changed from white to yellow.

what's in the future

department plans

The period from October 1, 1962 to October 1, 1963 has been programmed as a year of highway progress. In miles completed, in miles under construction, and in projects begun, the twelve-month period ahead will be one of the busiest in the Department't history.

As in other years, highway work is programmed to benefit all parts of the state, not only by geographical area, but also to serve urban, suburban, and rural communities as well.

Because the usual limiting factors of available funds and personnel apply, Department planners must adopt priorities in the scheduling of state highway projects. The primary factors include traffic needs and desires, highway safety, economic necessity, approval by the Federal Bureau of Public Roads, and approval by those communities which exercise a veto power over proposed routes.

Following is a thumbnail review of continuing and anticipated highway projects for both the Interstate System and the ABC System of primary, secondary and urban roads.

Note: Projects are listed by areas, and also by stage of progress as: Under Survey and/or Design; Right of Way Takings; To Be Advertised for Bids; or Under Construction.

METROPOLITAN BOSTON

INTERSTATE (under construction)

I-93 - Medford: From Riverside Avenue crossing Mystic River to Medford-Somerville line at Mystic Valley Parkway. (October, 1963)

INTERSTATE (under design)

I-695 - Boston Belt Route - Charlestown Extension to south of Prison Point Bridge, 4/10 mile.

METROPOLITAN BOSTON (continued)

ABC (to be advertised)

Boston: Alford Street, (winter of 1962-1963)
Route 128 - Needham-Wellesley: Route 9 to Newton line, (winter, 1962-1963)

ABC (under construction)

Route 128 - Newton-Weston: Route 30 to Massachusetts Turnpike. (June, 1963)
Woburn: Forest Park to Burlington line. (December, 1964)
Weston-Wellesley-Newton: Massachusetts Turnpike to the Wellesley-Newton line. (Early 1964)
Burlington-Lexington: Route 3-A to Routes 4 & 225. (August, 1964)

WORCESTER-CENTRAL MASSACHUSETTS

INTERSTATE (under construction)

I-495 - Boxboro-Littleton: Harvard-Boxboro town line to north of Boxboro-Littleton town line. (January, 1964)
I-495 - Marlborough-Southborough: North of Ward Road, Southborough, to north of Route 20, Marlborough. (October, 1964)
I-495 - Southborough-Westborough: South of Route 9, Westborough, to north of Ward Road, Southborough. (Summer, 1964)
I-290 - Worcester Expressway: North of Belmont Street to north of railroad spur. (August 1963). Also, north of railroad spur to Burncoat Street. (Summer, 1964)

ABC (under design)

Route 2 - Westminster: From east of West Main Street to Battles Road, 2 miles. Advertise for bids in Spring of 1963.
Route 62 - Sterling: From Route 12, 2.3 miles to the Lancaster town line. Advertising date in Spring of 1963.
Route 140 Relocation - Westminster: From new Route 2 southerly 1.3 miles. Advertise for bids Spring of 1963.

ABC (under construction)

Route 140 - Shrewsbury-Boylston: From Worcester town line to 700 feet north of the Boylston town line, 8/10 mile. (August, 1963.)
Route 2 - Gardner-Westminster: Gardner to West Main Street, Westminster. (September, 1963.)
Route 2 - Gardner: West Broadway to Chelsea Street. (January, 1964.)
Route 70 - Boylston-Shrewsbury: Worcester city line to Boylston town line. (August, 1963.)

ABC (reconstruction)

Route 56 - Oxford-Leicester: 3.8 miles north of Route 20 to south of Peter Salem Road; project includes cutoffs. Advertise for bids three months after the town makes Right of Way available.

WESTERN MASSACHUSETTS

INTERSTATE (under construction)

I-91 - Greenfield: (Grading only) From Yetter's Curve to new Route 2. Also new Route 2 to existing Route 2. (Both, 1964.)
I-91 - Hatfield-Whately: (Bridge only) Swamp Road to one and one-half mile south of the Whately-Hatfield town line. (July, 1963.)
I-91 - Springfield: From South End Bridge to Broad Street. (Fall, 1963), also from Broad Street to Union Street. (January, 1964.)

INTERSTATE (under design)

I-91 - Northampton-Easthampton-Holyoke: From Hatfield Road, Northampton to Whitney Avenue, Holyoke. Expected to be advertised for bids early 1963.
I-91 - Whately-Hatfield-Northampton: Swamp Road, Whately to Hatfield Road, Northampton.
I-91 - Whately-Hatfield-Northampton: Grading on this section has been completed. Bridges, surface and drainage contract is expected to be advertised for bids early 1963.
I-91 - Northampton: From Hatfield Road to the vicinity of the Ox Bow, 4.1 miles. This is just for grading. Expected to be advertised for bids early in 1963.
I-91 - Springfield: Union Street to Gridiron Street. Advertise for bids summer, 1963.

ABC (under design)

Route 8 - Cheshire: Reconstruction of the route from the Adams town line southerly, 1 mile. Expect to advertise for bids early 1963.
Route 7 - Lenox By-Pass: From the present Route 20 by-pass south to the Lee line. It is expected to be advertised Spring, 1963.
Route 43 - Hancock: North of Whitman Road, southerly 2 miles. Expected to be advertised for bids the early part of 1963.
Route 41 - West Stockbridge: From the Massachusetts Turnpike southerly, 5.2 miles from the Great Barrington town line. It is expected to be advertised for bids in Spring of 1963.
Route 143 - Williamsburg: Chesterfield town line to Route 9, 2 miles. Bids to be advertised during the first part of 1963.
Route 2 Relocation - Erving: From the end of the previous construction westerly 4½ miles to the east of Farley Village. Bids expected to be advertised early Spring of 1963.

WESTERN (Cont.)

Route 83 - East Longmeadow: Springfield town line to East Longmeadow Center. Advertising date of 1963 dependent upon town's approval.

ABC (under study)

Monroe-Kingsley Hill Road cutoff - Access road to the government-subsidized atomic electric plant. Scheduled for construction in Spring, 1963.

MERRIMACK VALLEY-NORTH OF BOSTON

INTERSTATE (under construction)

I-495 - Haverhill: From Gile Street to Route 110. (July, 1964.)
I-495 - Haverhill: East of the West Bridge over the Merrimack River, Methuen to easterly of River Street, Haverhill. This also includes one mile of the new Route 125 Connector in Haverhill. (October, 1964.)
I-495 - Haverhill: East of River Street to Gile Street. (October, 1964.)
I-495 - Haverhill-Methuen: Substructure of westerly bridge over the Merrimack River.
I-495 - Methuen: Route 110 to westerly of the Merrimack Bridge. (June, 1964.)
I-495 - Andover-Lawrence: One contract (three jobs), east of I-93 to North Andover-Lawrence town line. (Summer, 1965.)
I-495 - North Andover-Lawrence: North Andover town line to north of Incinerator Road. (September, 1965.)
I-495 - Chelmsford-Lowell-Tewksbury: East of Route 3 to east of Route 38. (October, 1963)

ABC (under construction)

Route 125 - Haverhill: Connector and relocation. (August 7, 1963.)

SOUTHEASTERN MASSACHUSETTS

INTERSTATE (under construction)

I-95 - Attleboro: Rhode Island state line up to and including South Avenue, Attleboro. (August, 1963)
I-95 - Attleboro: South Avenue, north, to north of Route 152 in North Attleboro. (June, 1963.)
I-95 - North Attleboro-Mansfield: North of Route 152 in North Attleboro to the Mansfield-Foxboro town line. (Early, 1964.)
I-195 - Fall River-Westport: West of Eastern Avenue, Fall River, to the Westport town line. (Fall, 1963.)
I-195 - Fall River-Somerset: Bridge over the Taunton River connecting Fall River to Somerset. (late, 1964.)

INTERSTATE (under design)

I-95 - Foxboro: Mansfield town line to north of Cocasset Street, 3.3 miles. Early in 1963.
I-95 - Foxboro-Sharon: North of Cocasset Street to south of the Old Post Road, 3.7 miles. (Late, 1962.)
I-195 - Fall River: Brayton Avenue Interchange, 7/10 miles. Late, 1962.
I-195 - Fall River: From the east end of the Taunton River Bridge to east of the Western Fall River Expressway, 3/10 miles. Early, 1963.

ABC (under construction)

Route 3 Relocation - Hanover-Norwell-Marshfield-Pembroke: (December, 1963.)
Route 3 Relocation - Pembroke-Marshfield-Duxbury: (December, 1963.)
Route 25 Middleborough-Raynham-Bridgewater: From Route 24 to Route 44. (December, 1963.)
Route 28 Relocation - Bourne-Falmouth: (June, 1964.)

ABC (under design)

Route 27 - Medfield-Sherborn: Bridge and approaches over the Charles River. Spring of 1963.
Route 58 - Carver: South Meadow Road to Seibet Street, 3.1 miles. Spring of 1963.
Route 105 - Lakeville: Middleboro town line to Route 18, 2.4 miles. Spring of 1963.
Route 106 Relocation - Mansfield-Easton: East Street, Mansfield to Route 123 in Easton, 2.6 miles. Spring of 1963.
Route 149 - Barnstable: Route 6 to Route 28. Summer of 1963, 3.7 miles.

ABC (to be advertised)

Route 44 - Middleborough: From Middleborough Rotary to Plympton Street. Fall of 1962.
Brayton Avenue - Fall River: Spring, 1963.

ABC (under study)

Route 140 - New Bedford: From Braley Road to Phillips Road and Church Street.

ABC (right of way)

Route 44: Middleborough-Carver section from Plympton Street to Route 58. Construction planned for 1964.

Aerial View of John F. Fitzgerald Expressway (Central Artery), Boston

super highways · a must

With a constantly increasing number of motor vehicles on our highways, 1,941,063 passenger and commercial vehicles registered in the Commonwealth from January 1 to October 1, 1962, the need for expressways becomes more urgent year by year.

Based on a national average of 9,648 miles per vehicle per year, nearly twenty billion vehicle miles were traveled in Massachusetts in 1962. And it is estimated that the annual increase is about 4% per year.

Expressways save time--in Boston the Central Artery has cut some urban driving time from 25 to 3 minutes. Expressways save money, estimated to be 2¢ per mile. But most importantly, expressways save lives.

Despite the tremendous increase in vehicles and travel, and the increase in average speed on the highways, the number of deaths figured in vehicle miles has been diminishing. Figures for expressways prove they are safest of all.

Heavily traveled highways with controlled access have less than half as many accidents as similarly traveled highways with unlimited access.

To save lives, to save money, to save time, modern expressways are the answer.

expressways vs. motor vehicle registration

where will the money come from?

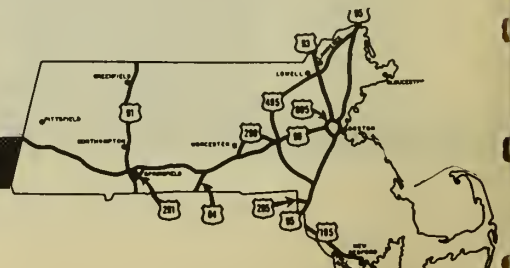
federal aid highway program

Federal aid to the states for highway improvement had its modest beginning in the Federal-Aid Road Act of 1916. Through the years, without interruption except in World War II, the program has continued to grow in size and importance commensurate with the explosive growth of motor vehicle transportation in the United States. For almost two decades, use of Federal aid was restricted to rural portions of what now constitutes the Federal aid primary highway system, an extensive network including most of the country's major traveled roads. Since 1934 Federal aid has also been extended to the urban portions of this system, and since 1944 to a Federal-aid secondary highway system of farm-to-market roads.

In 1944, the Interstate System, now known as the National System of Interstate and Defense Highways, was brought into being. This Interstate System is limited to 41,000 miles in extent, and constitutes the most important portions of the Federal-aid primary system. Federal-aid funds were authorized for the Interstate System but only in relatively modest amounts until 1956.

The Federal-Aid Highway Act of 1956, augmented by the Federal-Aid Highway Acts in subsequent years authorized a tremendously enlarged highway program which, in its entirety, will be the greatest peacetime construction program in history.

While expanding at an increased rate the traditional aid for primary, secondary and urban highway improvements, the 1956 act authorized Federal aid over a 13-year period for completion of the Interstate System. The 1956 act also established a Federal highway trust fund to receive Federal highway user excise taxes and from which funds for Federal highway aid are disbursed.



The Interstate System represents a planned, integrated network of the nation's most heavily traveled routes, linking the country's metropolitan areas and industrial centers, serving the national defense and connecting with routes of continental importance in Canada and Mexico. Comprising little more than 1 per cent of the total U.S. mileage, the system when completed will carry over 20 per cent ofthe nation's traffic.

Connected by the Interstate System are 90 per cent of all cities with more than 50,000 population in the United States.

In order to qualify for 90 per cent reimbursement of the cost of engineering, construction and land acquisition, the Commonwealth must abide by certain Federal standards. The highway must have complete control of access, generally of four, six or eight lanes with a median strip. Traffic lanes must be 12 feet wide and shoulders at least 10 feet wide.

The National System of Interstate and Defense Highways totals 41,000 miles throughout the United States. Of this total, Massachusetts has approximately 447.9 approved miles, including the 123 miles of the Massachusetts Turnpike. About 221 miles of this system are in use.

key to numbering of interstate system

Even numbers are used on the east-west highways such as I-90 (Massachusetts Turnpike). Odd numbers are used on north-south arteries such as I-91, I-93, I-95.

Routes which form loops off of the key directional routes, are given prefixes but retain the key numbers. Thus, I-695 (Inner Belt), I-495 (Outer Belt) I-295 are loops off I-95. And I-290 (Worcester Expressway) is a loop off I-90 (Turnpike) and I-291 is the Springfield loop off the I-91 north-south highway.

Final Apportionment of Federal-Aid Highway Funds

Authorized for the Fiscal Year 1963

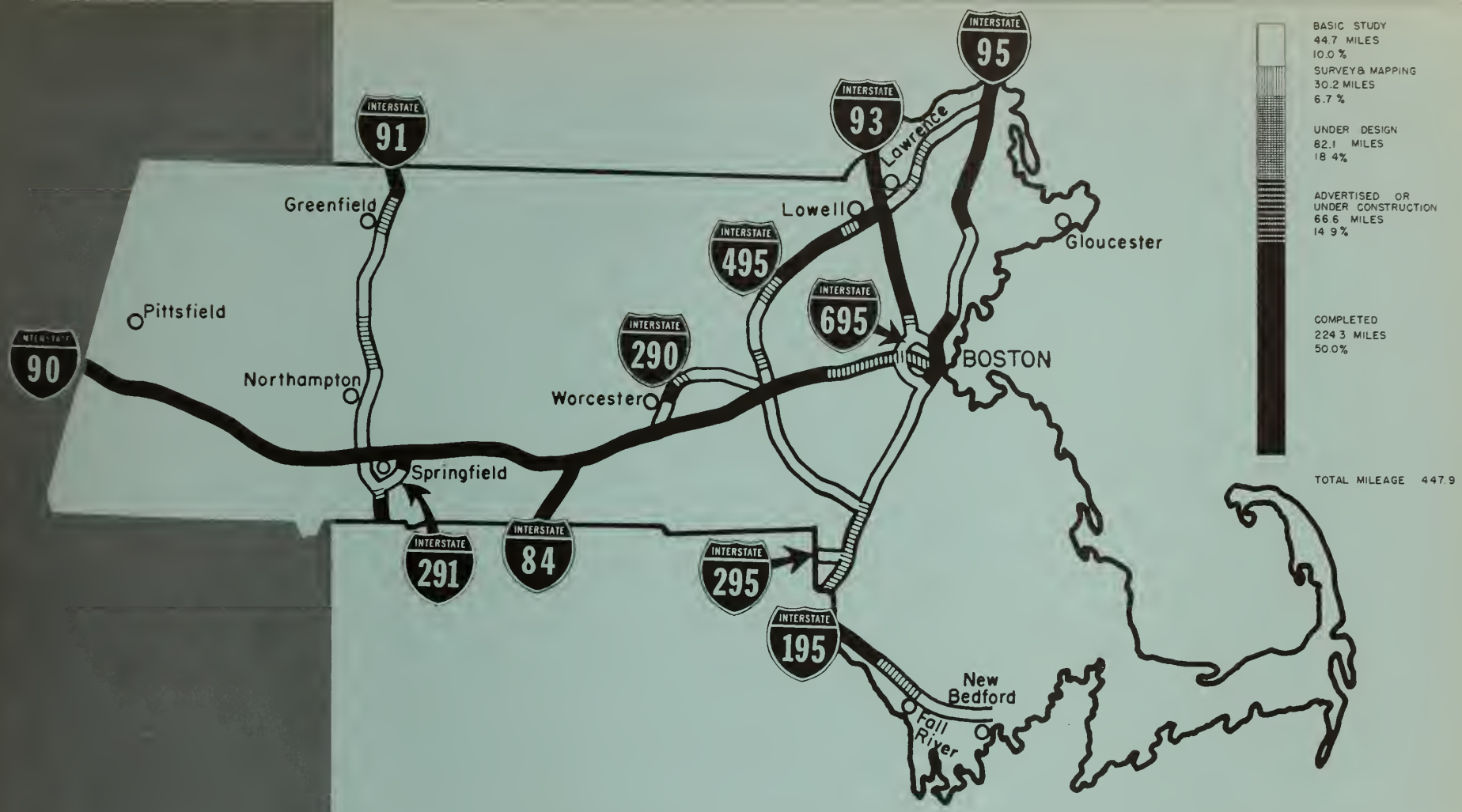
	Primary highway system ($416,250,000)	Secondary or feeder roads ($277,500,000)	Urban highways ($231,250,000)	Subtotal ($925,000,000)	Interstate system ($2,400,000,000)	Total ($3,325,000,000)
Alabama	$7,569,509	$5,818,263	$3,107,018	$16,494,790	$49,509,300	$66,004,090
Alaska	22,074,816	14,815,807	151,740	37,042,363	-	37,042,363
Arizona	6,762,658	4,397,233	1,727,732	12,887,623	33,606,600	46,494,223
Arkansas	5,639,442	4,528,253	1,259,326	11,427,021	25,050,900	36,477,921
California	22,247,521	10,532,114	25,004,182	57,783,817	228,847,200	286,631,017
Colorado	7,293,440	4,737,764	2,353,025	14,384,229	31,734,300	46,118,529
Connecticut	2,901,563	1,578,988	5,195,280	9,675,831	33,796,200	43,472,031
Delaware	2,055,234	1,370,156	530,571	3,955,961	8,911,200	12,867,161
Florida	8,015,276	4,982,594	5,588,630	18,586,500	49,651,500	68,238,000
Georgia	10,095,166	7,635,512	3,741,469	21,472,147	44,105,700	65,577,847
Hawaii	2,055,234	1,370,156	857,833	4,283,223	18,794,100	23,077,323
Idaho	4,630,210	3,326,774	482,138	8,439,122	11,233,800	19,672,922
Illinois	15,425,095	8,426,519	14,849,013	38,700,627	124,851,600	163,552,227
Indiana	9,222,532	6,678,936	5,185,909	21,087,377	59,273,700	80,361,077
Iowa	9,205,326	6,867,214	2,470,622	18,543,162	30,288,600	48,831,762
Kansas	9,139,087	6,387,530	2,267,788	17,794,405	18,557,100	36,351,505
Kentucky	6,469,942	5,539,143	2,307,267	14,316,352	48,822,000	63,138,352
Louisiana	6,095,886	4,389,890	3,617,533	14,103,309	69,132,900	83,236,209
Maine	2,947,462	2,249,416	784,294	5,981,172	11,304,900	17,286,072
Maryland	4,054,921	2,545,834	4,179,079	10,779,834	43,845,000	54,624,834
Massachusetts	5,424,274	2,448,943	7,964,678	15,837,895	51,286,800	67,124,695
Michigan	12,424,754	7,787,801	10,481,080	30,693,635	93,259,500	123,953,135
Minnesota	10,470,296	7,379,201	3,788,945	21,638,442	61,904,400	83,542,842
Mississippi	6,103,698	5,189,113	1,357,320	12,650,131	29,079,900	41,730,031
Missouri	11,126,223	7,614,648	5,135,818	23,876,689	61,217,100	85,093,789
Montana	7,749,693	5,372,553	529,083	13,651,329	22,396,500	36,047,829
Nebraska	7,589,682	5,402,939	1,332,764	14,325,385	13,983,000	28,308,385
Nevada	4,810,272	3,199,450	348,676	8,358,398	12,063,300	20,421,698
New Hampshire	2,055,234	1,370,156	611,348	4,036,738	10,736,100	14,772,838
New Jersey	6,127,534	2,180,663	9,959,813	18,268,010	62,402,100	80,670,110
New Mexico	7,011,801	4,725,276	1,117,302	12,854,379	23,889,600	36,743,979
New York	18,463,335	7,976,787	26,618,842	53,058,964	113,404,500	166,463,464
North Carolina	9,645,417	8,637,024	3,031,520	21,313,961	19,576,200	40,890,161
North Dakota	4,875,745	3,598,981	406,015	8,880,741	10,570,200	19,450,941
Ohio	14,126,600	8,789,002	13,073,033	35,988,635	163,340,400	199,329,035
Oklahoma	8,350,762	5,810,547	2,549,398	16,710,707	28,795,500	45,506,207
Oregon	6,436,149	4,496,007	1,930,963	12,863,119	41,569,800	54,432,919
Pennsylvania	15,331,618	9,833,029	14,709,478	39,874,125	107,052,900	146,927,025
Rhode Island	2,055,234	1,370,156	1,372,194	4,797,584	8,816,400	13,613,984
South Carolina	5,235,203	4,580,619	1,655,210	11,471,032	20,666,400	32,137,432
South Dakota	5,566,459	4,040,903	420,192	10,027,554	15,713,100	25,740,654
Tennessee	7,731,611	6,146,134	3,292,200	17,169,945	60,316,500	77,486,445
Texas	24,635,880	15,549,197	12,849,266	53,034,343	108,285,300	161,319,643
Utah	5,116,907	3,329,356	1,205,581	9,651,844	34,649,400	44,301,244
Vermont	2,055,234	1,370,156	321,261	3,746,651	16,518,900	20,265,551
Virginia	7,774,678	6,073,963	4,006,905	17,855,546	72,735,300	90,590,846
Washington	6,664,284	4,512,251	3,446,145	14,622,680	49,888,500	64,511,180
West Virginia	3,919,460	3,554,157	1,216,366	8,689,983	36,024,000	44,713,983
Wisconsin	9,109,799	6,431,738	4,471,619	20,013,156	21,164,100	41,177,256
Wyoming	5,022,560	3,412,437	272,701	8,707,698	22,965,300	31,672,998
Dist. of Col.	2,055,234	1,370,156	1,450,816	4,876,206	34,412,400	39,288,606
Puerto Rico	2,080,925	2,299,811	1,772,394	6,153,130		6,153,130

Final Apportionment of Federal-Aid Highway Funds

Authorized for the Fiscal Year 1964

State	ABC				Interstate system ($2,600,000,000)	Total ($3,550,000,000)
	Primary ($427,500,000)	Secondary ($285,000,000)	Urban ($237,500,000)	Subtotal ($950,000,000)		
Alabama	$8,085,904	$6,182,673	$3,188,336	$17,456,913	$53,635,075	$71,091,988
Alaska	22,838,367	15,327,203	155,712	38,321,282	-	38,321,282
Arizona	6,185,829	4,010,494	1,772,951	11,969,274	36,407,150	48,376,424
Arkansas	6,097,590	4,853,851	1,292,286	12,243,727	27,138,475	39,382,202
California	21,652,107	10,013,735	25,672,496	57,338,338	247,917,800	305,256,138
Colorado	7,101,115	4,606,555	2,414,608	14,122,278	34,378,825	48,501,103
Connecticut	3,045,676	1,656,988	4,581,477	9,284,141	36,612,550	45,896,691
Delaware	2,110,781	1,407,187	544,458	4,062,426	9,653,800	13,716,226
Florida	7,779,118	4,815,902	6,668,740	19,263,760	53,789,125	73,052,885
Georgia	10,709,068	8,065,525	3,843,060	22,617,653	47,781,175	70,398,828
Hawaii	2,110,781	1,407,187	880,283	4,398,251	20,360,275	24,758,526
Idaho	4,722,011	3,388,749	501,310	8,612,070	12,169,950	20,782,020
Illinois	15,968,454	8,750,018	15,229,044	39,947,516	135,255,900	175,203,416
Indiana	9,652,474	6,979,435	5,321,635	21,953,544	64,213,175	86,166,719
Iowa	9,593,793	7,145,476	2,535,283	19,274,552	32,812,650	52,087,202
Kansas	9,557,916	6,674,220	2,327,141	18,559,277	20,103,525	38,662,802
Kentucky	6,923,936	5,874,348	2,367,652	15,165,936	52,890,500	68,056,436
Louisiana	6,377,021	4,505,842	3,712,211	14,675,074	74,893,975	89,569,049
Maine	3,143,060	2,387,259	804,820	6,335,139	12,246,975	18,582,114
Maryland	4,264,822	2,676,699	4,288,454	11,229,975	47,498,750	58,728,725
Massachusetts	5,386,941	2,383,617	8,183,886	15,954,444	55,560,700	71,515,144
Michigan	13,241,895	8,318,348	10,755,393	32,315,636	101,031,125	133,346,761
Minnesota	10,734,691	7,566,026	3,888,110	22,188,827	67,063,100	89,251,927
Mississippi	6,618,222	5,561,704	1,392,843	13,572,769	31,503,225	45,075,994
Missouri	11,266,556	7,713,554	5,270,233	24,250,343	66,318,525	90,568,868
Montana	7,821,766	5,426,106	542,930	13,790,802	24,262,875	38,053,677
Nebraska	7,685,520	5,476,050	1,367,646	14,529,216	15,148,250	29,677,466
Nevada	4,871,838	3,240,252	357,801	8,469,891	13,068,575	21,538,466
New Hampshire	2,110,781	1,407,187	627,348	4,145,316	11,630,775	15,776,091
New Jersey	5,962,020	2,044,966	10,190,574	18,197,560	67,602,275	85,799,835
New Mexico	6,467,592	4,364,611	1,146,544	11,978,747	25,880,400	37,859,147
New York	19,172,836	8,332,376	27,315,513	54,820,725	122,854,875	177,675,600
North Carolina	9,930,532	8,886,438	3,110,862	21,927,832	21,207,550	43,135,382
North Dakota	5,383,972	3,946,473	416,641	9,747,086	11,451,050	21,198,136
Ohio	14,789,284	9,224,354	13,402,297	37,415,935	176,952,100	214,368,035
Oklahoma	8,496,500	5,914,170	2,616,121	17,026,791	31,195,125	48,221,916
Oregon	6,528,584	4,563,109	1,981,500	13,073,193	45,033,950	58,107,143
Pennsylvania	15,715,863	10,078,643	15,094,456	40,888,962	115,973,975	156,862,937
Rhode Island	2,110,781	1,407,187	1,425,969	4,943,937	9,551,100	14,495,037
South Carolina	5,409,816	4,726,329	1,698,530	11,834,675	22,388,600	34,223,275
South Dakota	5,942,523	4,300,016	431,189	10,673,728	17,022,525	27,696,253
Tennessee	8,323,813	6,567,024	3,378,364	18,269,201	65,342,875	83,612,076
Texas	25,770,827	16,283,307	13,180,455	55,234,589	117,309,075	172,543,664
Utah	4,647,238	3,014,802	1,237,133	8,899,173	37,536,850	46,436,023
Vermont	2,110,781	1,407,187	329,669	3,847,637	17,895,475	21,743,112
Virginia	8,287,423	6,439,440	4,111,778	18,838,641	78,796,575	97,635,216
Washington	6,776,836	4,580,076	3,547,795	14,904,707	54,045,875	68,950,582
West Virginia	4,148,403	3,731,930	1,248,201	9,128,534	39,026,000	48,154,534
Wisconsin	9,484,657	6,690,955	4,588,651	20,764,263	22,927,775	43,692,038
Wyoming	4,816,374	3,277,053	279,838	8,373,265	24,879,075	33,252,340
Dist. of Col.	2,110,781	1,407,187	1,488,788	5,006,756	37,280,100	42,286,856
Puerto Rico	2,110,781	2,347,677	1,822,235	6,280,693		6,280,693

interstate and defense



The Commonwealth of Massachusetts has almost reached the midway mark in the completion of the Interstate and Defense system of roads.

Of a total of 447.4 miles, 221 miles have been completed. Under construction is 66.7 miles. The balance of the network is either under Basic Study, Survey and Mapping, or under Design.

Note: The system includes 123 miles completed by the Massachusetts Turnpike Authority and designated as Interstate Route 90.

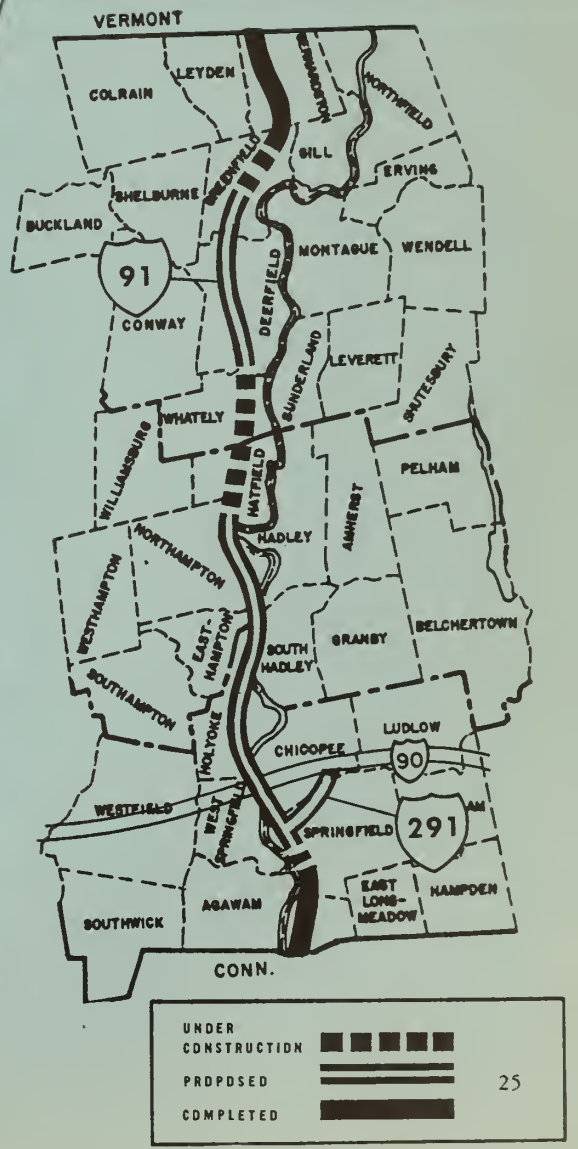
highway system in massachusetts

This 8.0 mile link between the Massachusetts Turnpike and Connecticut's Wilbur Cross Highway will be improved at a later period in the program. Presently identified as State Route 15, this divided highway requires an estimated $2,621,000 to bring it up to interstate expressway standards.

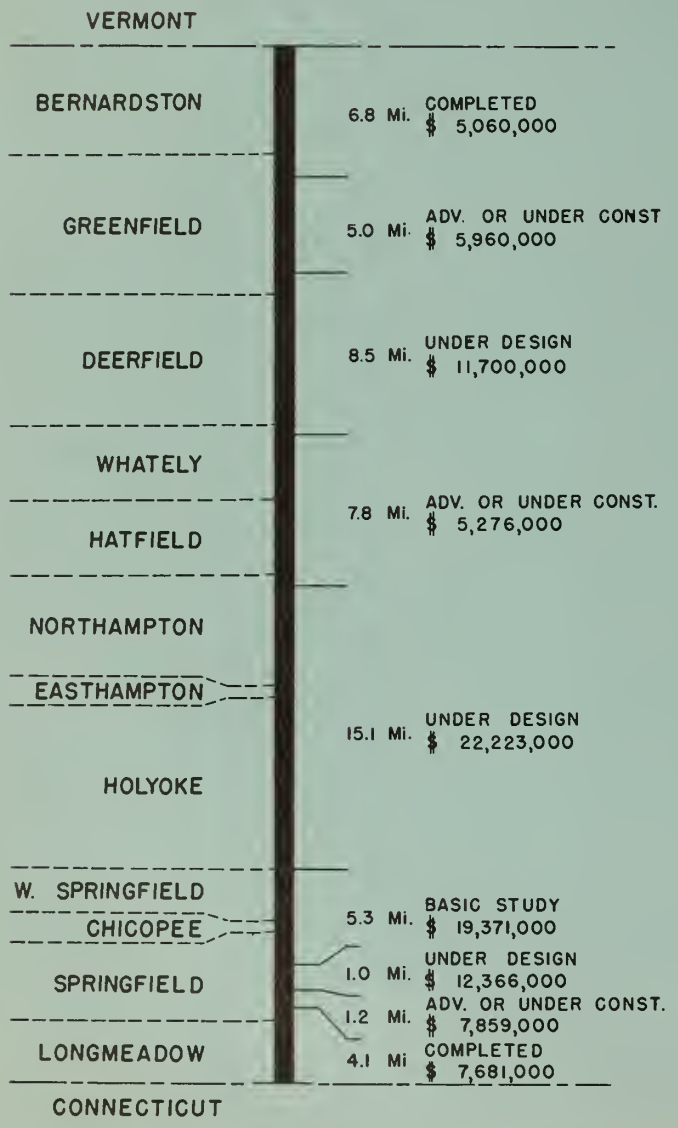
EXISTING

INTERSTATE 91

along the connecticut river valley



interstate route 91



Interstate 91 is the principal north-south expressway serving the industrial cities of the Connecticut Valley, extending from New Haven to the Canadian border north of St. Johnsbury. In Massachusetts it extends from Longmeadow at the Connecticut line to Bernardston at the Vermont line.

When completed, the 54.8 mile highway will be one of the most scenic routes in the state, and is expected to draw additional thousands of tourists to the area each year. In addition, the highway will serve as a most important intercity link between the urban cluster of cities and towns in the Greater Springfield area, and will greatly relieve these communities of much of the heavy traffic now using Routes 5 and 10.

The first 4.5 miles of Interstate 91 were opened from the Vermont line to Route 10 in Bernardston on June 24, 1960. A second section, 2.3 miles in length, extended the highway southward to Greenfield in September of 1960.

At about the same time, 1960, a second section of the highway from the Connecticut line in Longmeadow was completed to a junction with Route 5 and 21 in Springfield, and as far as the South End Bridge.

In Greenfield, new construction begun late last year will go southwesterly for three miles to a point near Country Club Road. It will parallel the B & M railroad tracks. Work has also begun recently on an additional section from Bungalow Road to the present Route 2 near Gill Road, close to the Deerfield line.

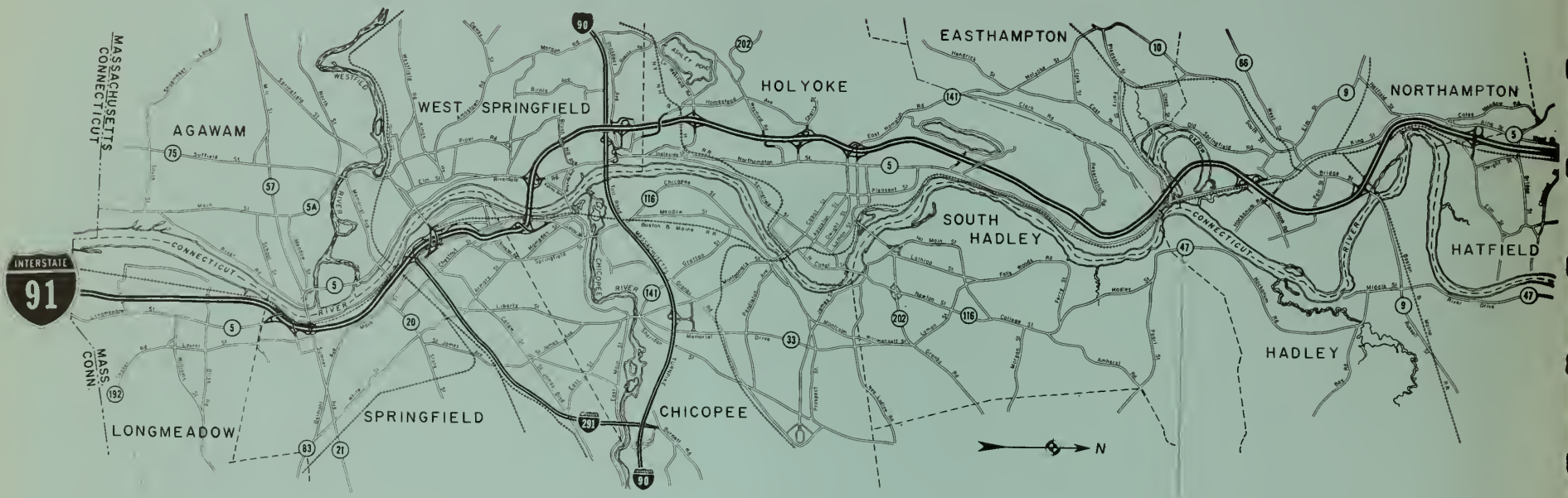
These contracts are for grading and bridges only. Because of the peculiar nature of the clay soils in much of the Connecticut Valley, most of the construction along the river calls for excavation and pre-loading, a process in which an excess of fill is allowed to settle for as much as two years. Then, after re-grading, surfacing can begin.

The target date for the completion of this three-mile section is set for November, 1964, and the cost will be $3,132,706. Included are seven bridges and a huge rotary as the southerly end of the new Route 2 bypass around Greenfield.

Southward, to Deerfield and into Whately, the highway is in the advanced design stage, with right of way proceedings to be made in advance of future construction.

Interstate Route 91 in Bernardston, Looking South

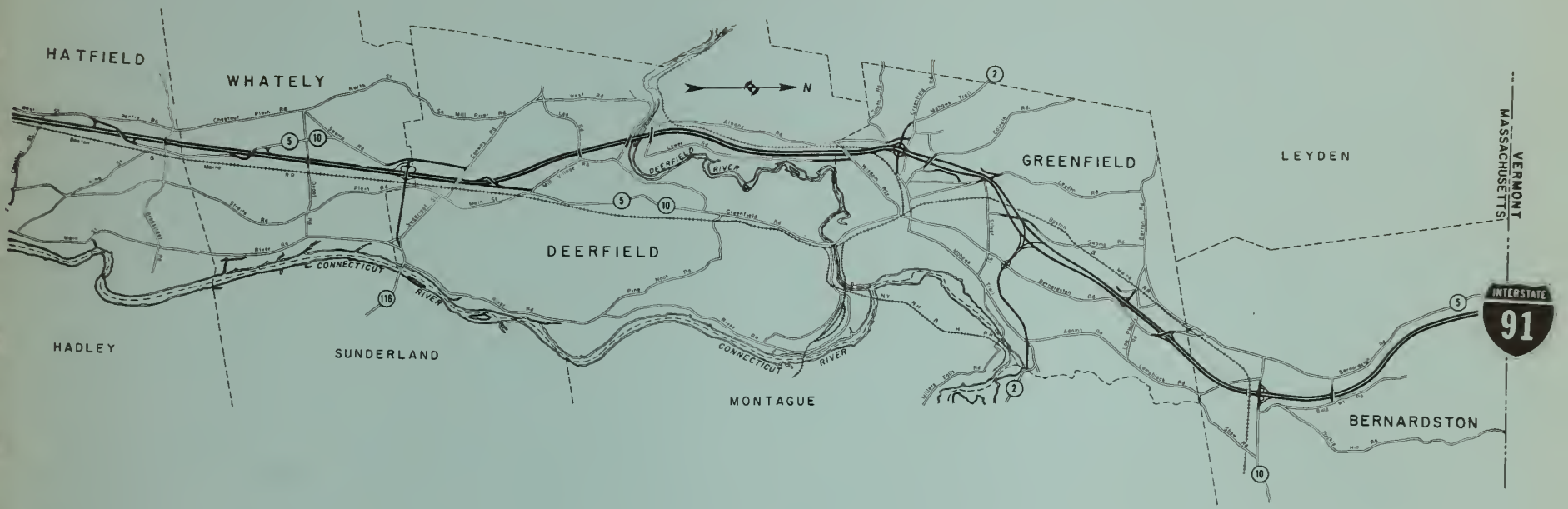
interstate route 91



Grading of the Whately-Hatfield section was divided into two contracts. The first was completed in December of 1961. The second section was started this year and will be completed in July of 1963.

From Hatfield to Northampton, a 3.1 mile grading contract was completed in December of 1961. It is expected that the final contracts for bridges and surface of the eight-mile section from Whately to Northampton will be advertised for bids at the end of the present year.

The 15 miles through Northampton, Southampton and Holyoke will be built in three sections from Hatfield Road in Northampton, crossing the famous Ox-Bow to the present Route 5 near the Easthampton line. Then it continues southerly to a point near Whitney Avenue, Holyoke. This area is now in the design stage, with the right of way layout scheduled to be filed within the 1963 fiscal year.



The location of I-91 between Holyoke and Springfield at a point near the North End Bridge is still in doubt. A public hearing on the proposed route was held in Springfield on April 12, 1962, at which a number of alternate proposals, involving six different points for crossing the Connecticut River, were discussed. The results of the hearing as well as studies of additional proposals, have delayed a selection of the final route.

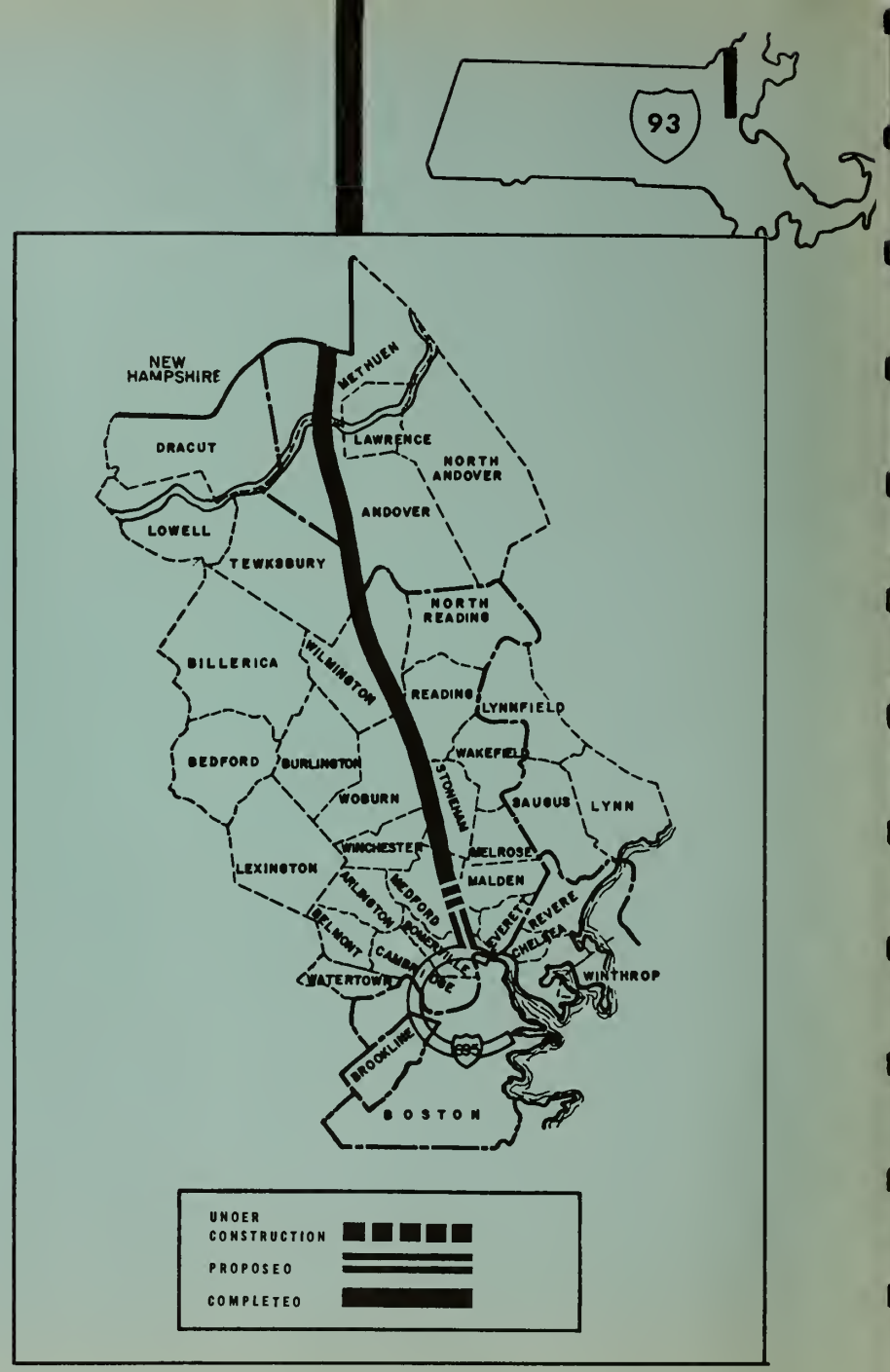
From the South End Bridge in Springfield, construction of a portion northward .8 of a mile to Broad Street and Columbus Avenue was begun in December 1961, and is expected to be completed in December of 1963. An additional segment from Broad Street to Union Street, .4 of a mile, was started October 2, 1962 and will be completed on October, 1964.

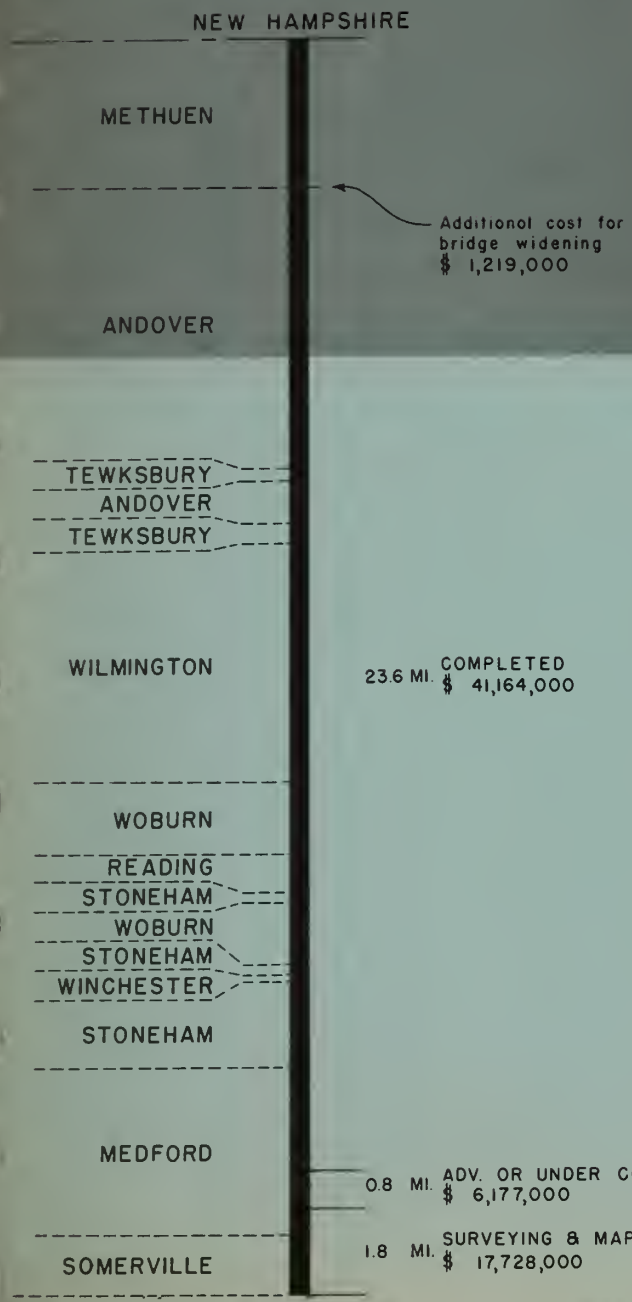
Total construction cost of the 1.2 miles is approximately $3,250,000.

Completed from Methuen at the New Hampshire line to Medford at the Mystic River, Route 93 represents one of the major radials from Boston...the Northern Expressway.

The portion presently under construction, involving the crossing of a relocated Mystic River, was begun in November of 1960, and is scheduled for completion in December of 1964. The estimated construction cost is $8,650,000.

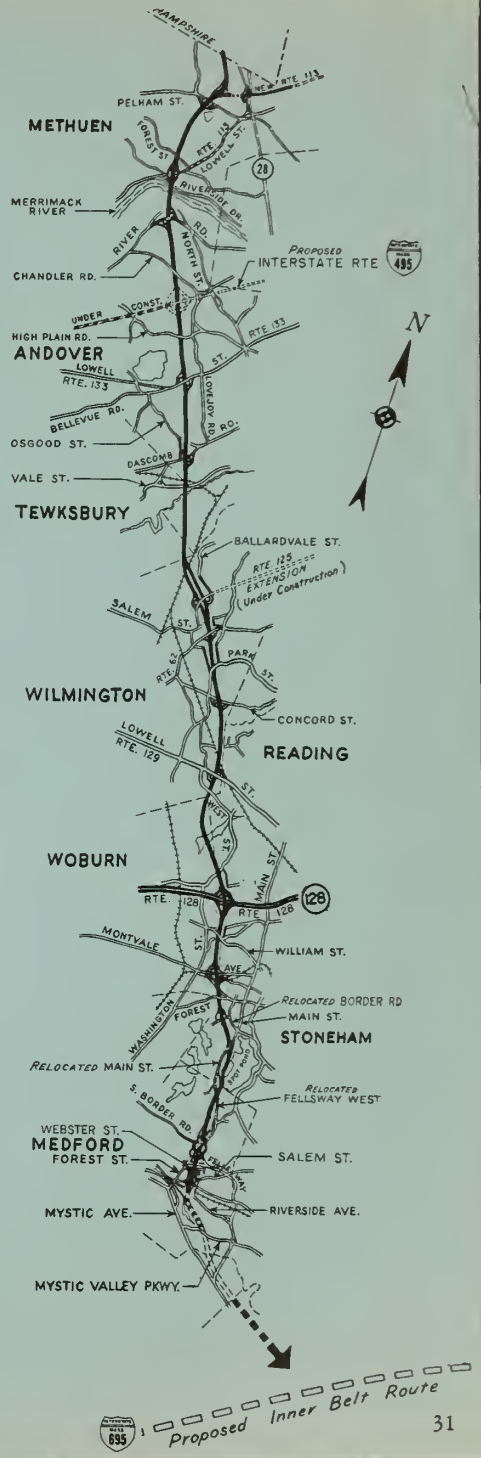
The relocation of the river, actually the straightening of the snake like channel of the river in the area, will permit the use of a single major bridge to make the river crossing instead of several. The contract for this bridge to span the relocated Mystic River was recently awarded. The cost is estimated to be about $610,000.





Basic studies on the final connection of this expressway with the Inner Belt (I-695) at Somerville have been made and were included in the consultant's report for the Inner Belt and radial expressways. The estimated costs for the one-mile section are expected to be near $11,000,000.

When completed, the expressway will be a vital highway between Boston and the industrial cities of the central Merrimack Valley. It will also provide a direct route to Concord, New Hampshire, and the Lakes Region, as well as other points north.



mystic river

Project a Year Ago

Progress Photo Shows Relocated Mystic River, and in Lower Left Center the Bridge Overpassing Mystic Valley Parkway

relocated for route I-93

Interstate Route 95 in Georgetown

Interstate Route 95, the expressway replacement for U.S. Route 1, from Maine to Florida, will be the principal through route along the Atlantic seaboard. It will connect all the major cities of the nation's east coast, and will serve as the eastward terminus of all east-west crosscountry interstate and defense highways.

In Massachusetts it enters the state in Salisbury at the New Hampshire line, passes through Boston, and continues southwestward to the Rhode Island line at Attleboro...a distance of just under 80 miles.

Of this total, 20.8 miles have been completed, a little over 12 miles more are presently under construction, and the balance either under design or under study.

NEW HAMPSHIRE

SALISBURY
AMESBURY
NEWBURYPORT
W. NEWBURYPORT
NEWBURY

20.8 MI. COMPLETED $ 17,677,000

GEORGETOWN
ROWLEY

NOTE: To confarm to interstate standards $ 7,624,000

BOXFORD
MIDDLETON
TOPSFIELD
DANVERS
PEABODY

11.8 MI. BASIC STUDY $ 30,180,000

LYNN
SAUGUS
REVERE
CHELSEA

9.5 MI. COMPLETED $ 130,927,000

BOSTON

9.6 MI. BASIC STUDY $ 89,388,000

MILTON
CANTON
NORWOOD
SHARON
NORWOOD
WALPOLE
SHARON

14.8 MI. UNDER DESIGN $ 18,778,000

FOXBOROUGH
MANSFIELD
N. ATTLEBOROUGH

11.6 MI. ADV. OR UNDER CONST $ 16,005,000

ATTLEBORO

RHODE ISLAND

From the New Hampshire line the highway has been completed as far as Route 1 in Danvers, a distance of 20.8 miles. Begun as part of a Route 1 relocation prior to the establishment of the Interstate system and its high standards, some future changes will be necessary to conform to interstate standards.

From the Route 1 junction at Danvers to Cutler Circle in Revere, a distance of approximately 12 miles, the location of the route is still under study. A preliminary report is expected soon.

The 8.5 miles from Cutler Circle in Revere to Massachusetts Avenue in Boston has been completed. Included in this section is a part of the Northeast Expressway, the Mystic River Bridge (under the control of the Massachusetts Port Authority), and the Central Artery, named the John F. Fitzgerald Expressway.

interstate route 95

The location of I-95 from Massachusetts Avenue to Route 128 at the Milton-Canton line was included in the study presented in the consultants' report on the Inner Belt and its radials, in August of this year.

Designated as the Southwest Expressway, a public hearing on the proposed location was held in the Hyde Park section of Boston on September 24. Because some people could not be accommodated in the hall, a second public hearing was held in Roxbury on October 22. The Department is now studying the proposed locations.

From a major interchange with Route 128 in Canton, I-95 continues southwestward, and the highway is under engineering design from 128 to Route 1 in Sharon, a distance of 7 miles. Land takings along this location may be underway before mid-1963.

From Route 1 in Sharon to north of Cocasset Street in Foxborough a distance of about 3.7 miles will be advertised late this year.

From north of Cocasset Street in Foxborough to the Foxborough-Mansfield Town Line, a distance of 3.3 miles will be advertised for bids in early 1963.

Construction from the Mansfield-Foxboro town line was begun in July, 1962, and is scheduled for completion in the Spring of 1964. From this point to the Rhode Island line, a distance of nearly 10 miles, construction is under way. Included are two sections of the highway which were completed as grading contracts and allowed to settle prior to surfacing.

Final cost of the entire highway is expected to be close to $300,000,000.

This route serves as a direct connector with the City of Providence and the nation-wide network of expressways for the industrial cities of Fall River and New Bedford, as well as all southeastern Massachusetts.

From the Rhode Island line at Seekonk to New Bedford, I-195 measures 25 miles. Approximately 8 miles, from Seekonk to the Route 6 Interchange at Swansea have been completed.

Additional construction is now under way as far as the Taunton River in Somerset, for a 3 mile section costing $3,320,337.50. It will be completed late this year.

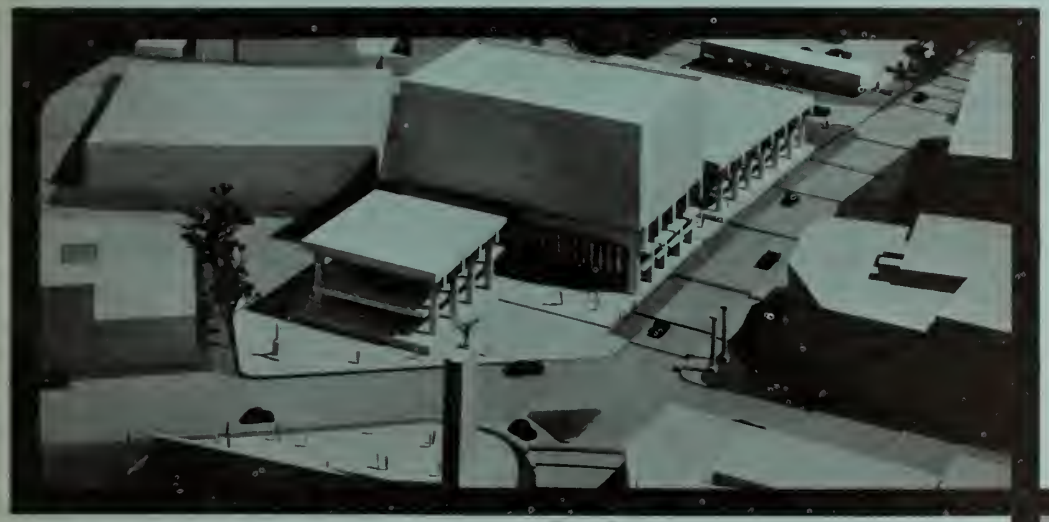
Substructure for the $22,000,000 high-level bridge spanning the Taunton River between Somerset and Fall River was completed in October, and work on the steel superstructure has begun. Work is nearly three months ahead of schedule. The bridge is the largest ever undertaken by this Department. Its 135-foot vertical clearance over the main ship channel, adjacent to the State Pier, will permit free passage for the largest vessels.

In Fall River, some demolition has been completed, and more, including the City Hall, are underway. One of the problems facing design and construction in this city is the necessity of preserving the free flow of the long covered stream which gave the City its name. Once the prime source of power for the great mills, the Quequechan River is now principally a source of water for other manufacturing purposes.

Currently under construction is a section from the Narrows to the vicinity of Eastern Avenue, expected to be completed in December of 1963. The remaining Fall River sections are expected to be advertised for bids, totalling some $13,000,000, later this fiscal year.

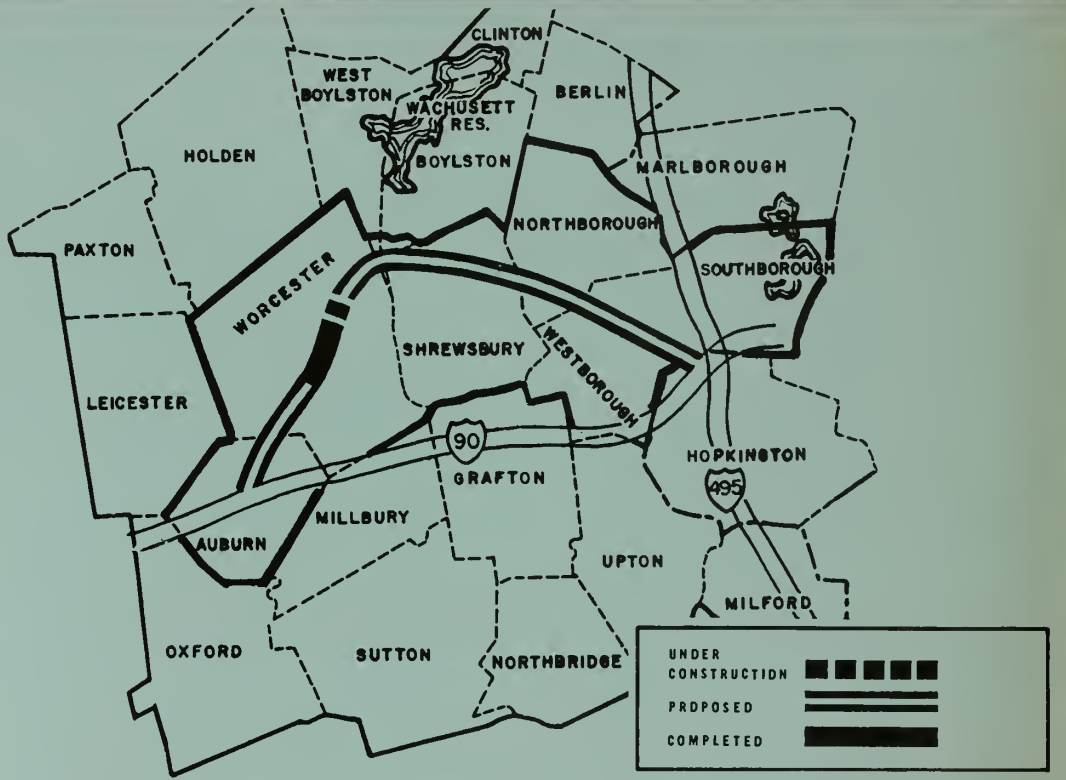
From Westport to New Bedford, a distance of 10 miles, the highway is under design. Some properties are now being taken in New Bedford in anticipation of future construction.

Completed Substructure of Somerset-Fall River Bridge



Architect's Model of Fall River City Hall to be Built over Interstate Route 195, First Use of Air Rights over State Highway in Massachusetts

INTERSTATE 290 the worcester expressway



AUBURN	2.8 MI.	UNDER DESIGN $ 3,547,000
WORCESTER	1.5 MI.	SURVEYING & MAPPING $ 7,833,000
	2.0 MI.	COMPLETE $ 23,048,000
	1.5 MI.	ADV. OR UNDER CONST. $ 9,616,000
SHREWSBURY	12.1 MI.	BASIC STUDY $ 24,492,000
NORTHBOROUGH		
WESTBOROUGH		

Interstate 290, sometimes referred to as the Worcester Loop, will eventually serve several functions. Its southwestern end in Auburn connects directly with the Massachusetts Turnpike. It will provide an urban artery for the city of Worcester itself; and it will give an expressway by-pass route for through traffic from the northeast via Interstate 495 - the Outer Belt.

Future plans also take into account the extension southward to include an expressway connection at the Connecticut line near Lake Webster. In addition, the design of the connector to Routes 12 and 110 at the Gold Star Boulevard, now under construction, will leave a stub to which a north-south expressway through the Central Corridor might be connected. Thus the more than 200,000 persons of the Greater Worcester area will be in touch with all points of the compass.

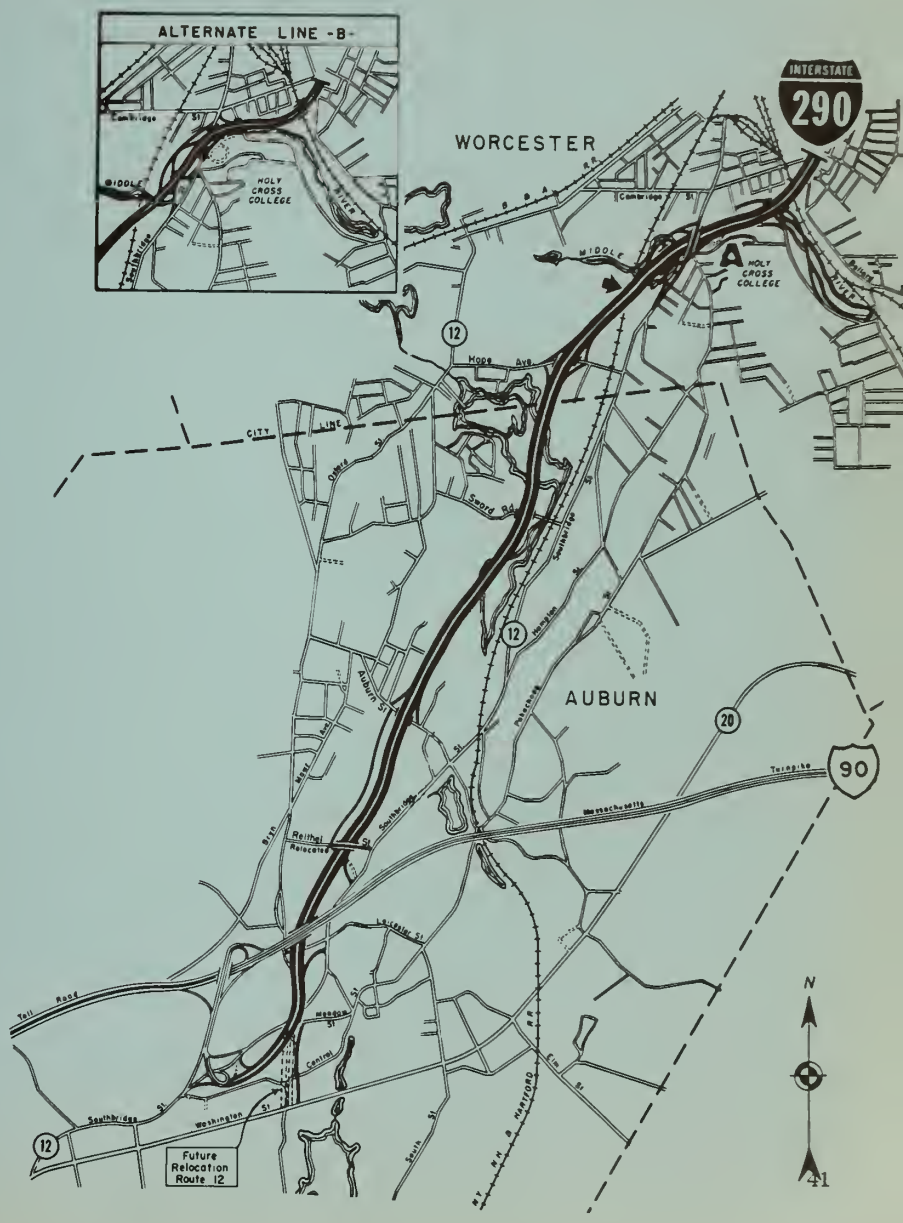
The effects of the present stretch of two miles that have been completed between Brosnihan Square and Harrison Street have already become apparent, drawing much of the traffic from the city streets.

Construction is now under way from Belmont Street to Burncoat Street. In two sections, the total mileage is 1.5 miles, and the construction cost approximately $5,600,000. The completion date for the section is July, 1964. Included in the second project is a connector with the Gold Star Boulevard, and access ramps in the vicinity of a relocated Millbrook Street. This complex will include six bridges.

At this point I-290 swings easterly beyond Lake Quinsigamond. The location of the eastern end is still under study...an 8.5 mile section estimated to cost $14,000,000.

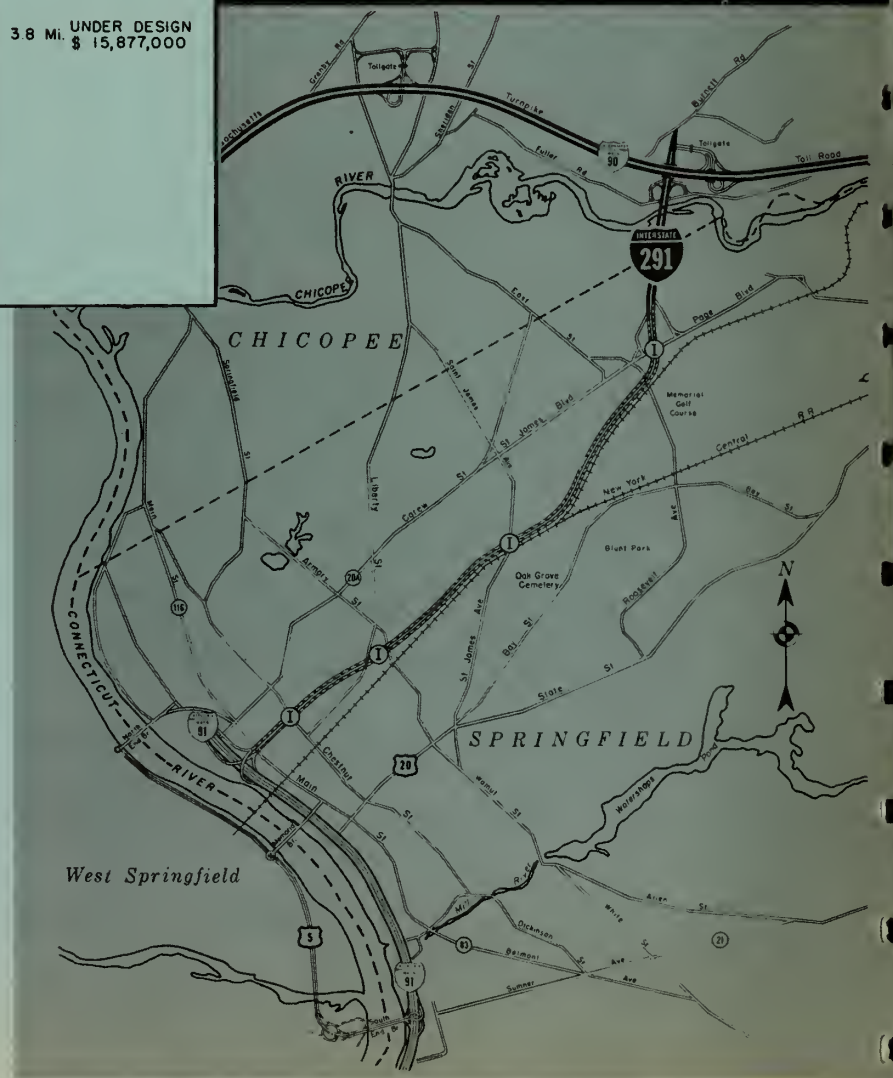
Southward from Brosnihan Square, the exact route is also in some doubt. Studies and cost estimates have been made, especially below Brosnihan Square in the vicinity of Holy Cross College.

From the Massachusetts Turnpike to Hope Avenue, a distance of 2.7 miles, preliminary designs are under way. It is expected that this section will be advertised for bids in the spring of 1963, with an estimated cost totalling $3,500,000. The 1.7 mile section from Hope Avenue to Brosnihan Square is estimated to cost more than $7,500,000, including right-of-way costs.



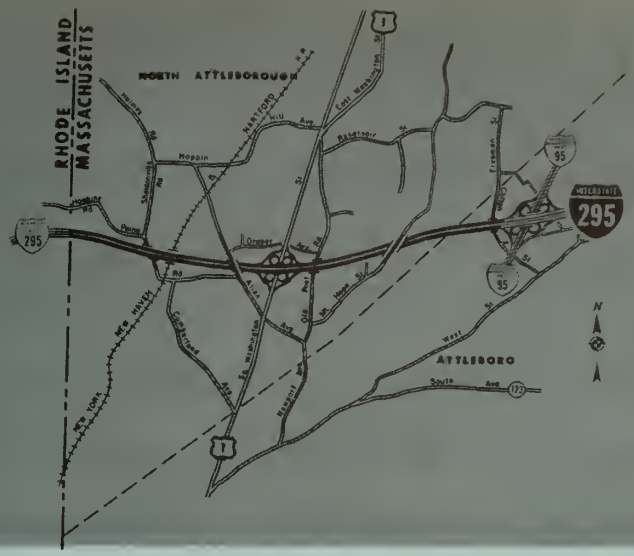
INTERSTATE 291

CHICOPEE	1.4 Mi.	COMPLETED $ 2,466,000
SPRINGFIELD	3.8 Mi.	UNDER DESIGN $ 15,877,000



Interstate 291, a Springfield urban connector, will join the Massachusetts Turnpike at Chicopee to Interstate 91, below the North End Bridge in Springfield. It will be located just north of the main business section, ideally situated to serve Greater Springfield, as well as to provide express travel from the Turnpike to points south.

A 1.4 mile section of the highway is already completed from the Turnpike to Page Boulevard. The remaining 4 mile section is now in the basic study stage; the location of the I-91 interchange will depend on the final decision as to the location of the north-south expressway in the vicinity of John Street.



In Massachusetts, I-295 provides a northerly anchor of a Belt Route around Providence.

Beginning in Attleboro at I-95, this route runs westerly four miles through North Attleborough to the Rhode Island line at Cumberland.

Design on the southerly line as presented at a public hearing in December 1961 has begun. Construction, expected to cost approximately $6,500,000, will be scheduled to dovetail with construction progress in Rhode Island.

the outer belt

SALISBURY
AMESBURY
MERRIMAC — 9.1 MI. UNDER DESIGN $ 12,389,000

HAVERHILL

METHUEN
LAWRENCE
NO. ANDOVER
LAWRENCE — 14.1 MI. ADV. OR UNDER CONST. $ 29,131,000

ANDOVER — 3.6 MI. COMPLETED $ 4,185,000

TEWKSBURY
LOWELL
CHELMSFORD — 4.0 MI. ADV. OR UNDER CONST. $ 5,480,000

LOWELL
CHELMSFORD

WESTFORD — 12.5 MI. COMPLETED $ 22,208,000

LITTLETON

BOXBOROUGH
HARVARD — 3.7 MI. ADV. OR UNDER CONST. $ 2,404,000

BOLTON
BERLIN
HUDSON — 9.9 MI. UNDER DESIGN $ 12,999,000

MARLBOROUGH
SOUTHBOROUGH
WESTBOROUGH — 4.4 MI. ADV. OR UNDER CONST. $ 7,297,000

HOPKINTON

MILFORD

MEDWAY
BELLINGHAM — 26.0 MI. SURVEY & MAPPING $ 28,445,000

FRANKLIN

WRENTHAM
PLAINVILLE
FOXBOROUGH

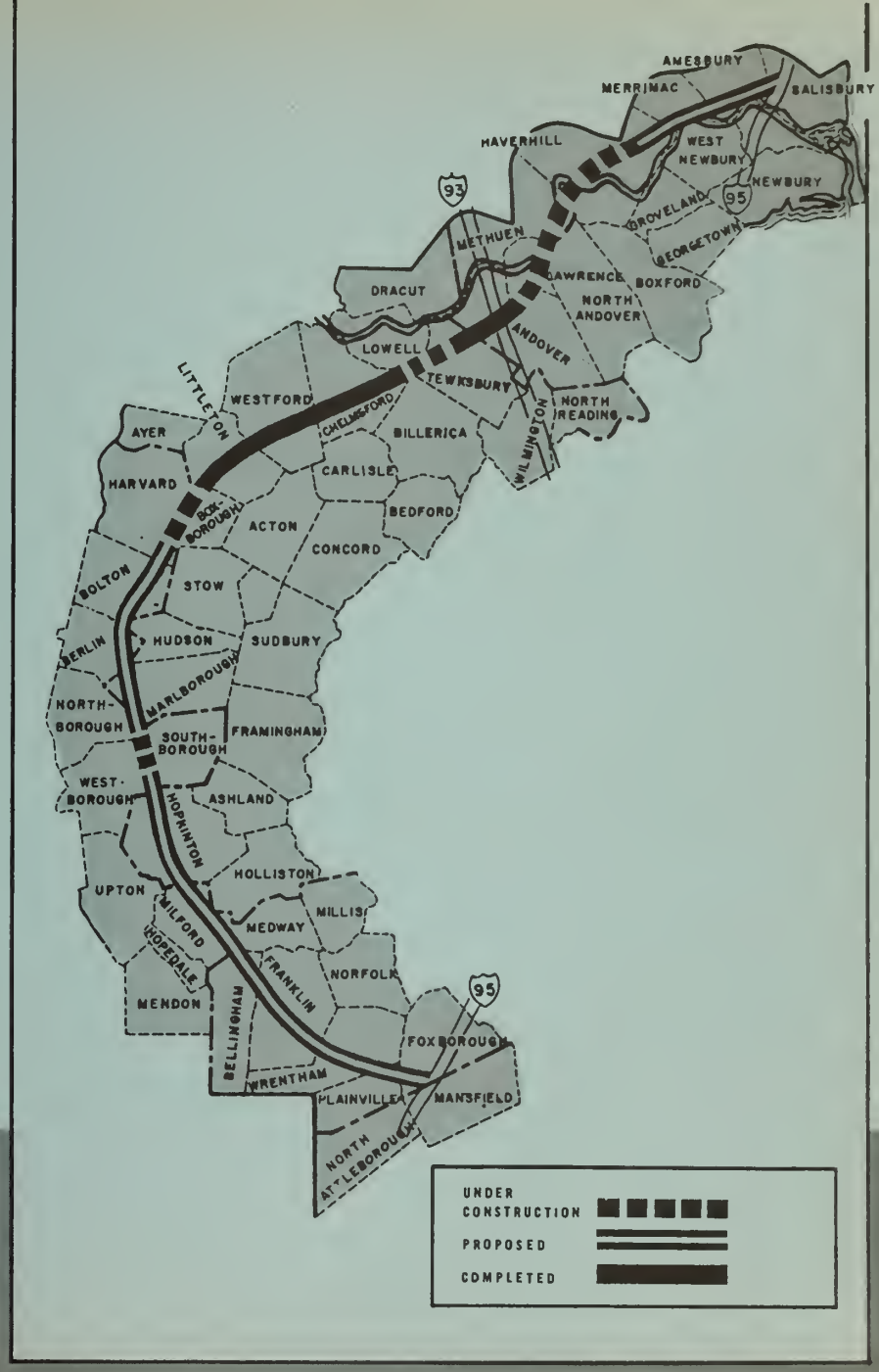
There has been substantial progress on almost every portion of Interstate 495 - the Outer Belt - in the past twelve months. Between Route 3 in Chelmsford and Route 2 in Littleton, the road is completed. The section between Westford and Littleton was opened in time for the holiday traffic at the year's end, 1961.

On both sides of the completed section, construction is under way. All of the highway from Route 3 eastward to the Merrimac town line is either under construction or bids have been solicited. Southward from Littleton to the Worcester Turnpike, a 10 mile section through Marlborough, Hudson, Berlin, Bolton and Harvard will be advertised late in this fiscal year.

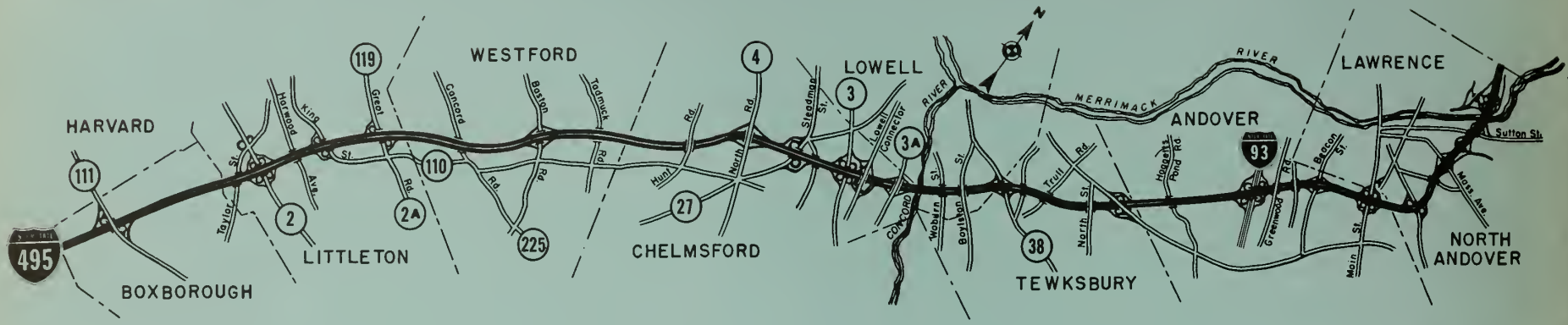
The south and westerly portion of the expressway, from Route 9 to its junction with Interstate 95 at Foxborough, which a year ago was only a line on a map, reached the public hearing stage in February, 1962.

The remaining section in the northeast, from Route 110 in Haverhill to the junction with I-95 in Salisbury near the New Hampshire line is in the design stage. Construction is scheduled for late in the interstate program.

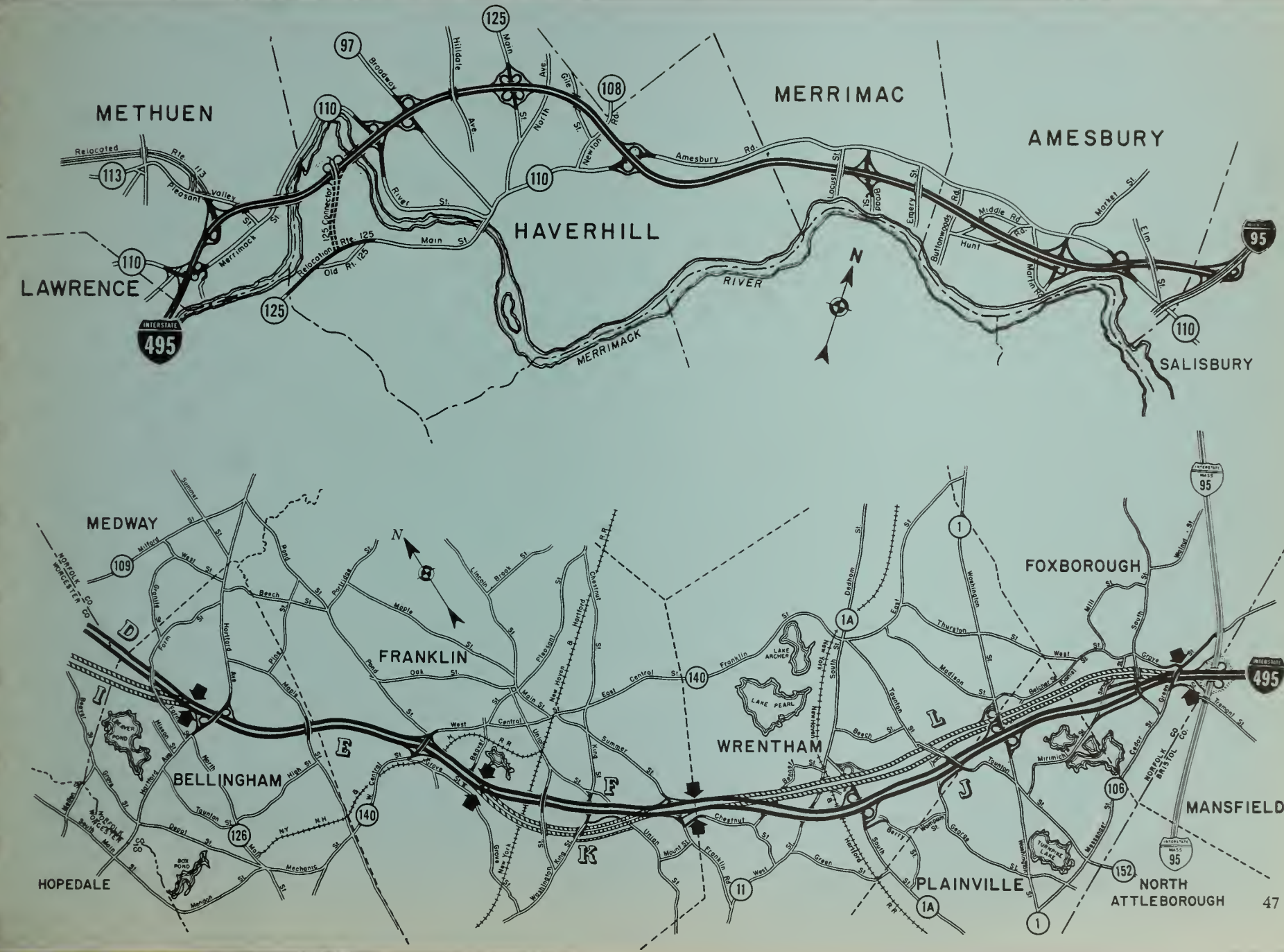
This looping 87 mile expressway, in effect the third belt highway around metropolitan Boston, also serves as a vital connector to the great industrial cities of the Merrimack Valley-Haverhill, Lawrence and Lowell. In its westward sweep some thirty miles from Boston, it will pass close to Worcester, connecting with I-290, the Worcester Loop, and swing south and eastward again to serve Milford and other manufacturing communities of the south-central area.



interstate route 495



(See Page 48 for Harvard - Westborough Section)


METHUEN
LAWRENCE
HAVERHILL
MERRIMAC
AMESBURY
SALISBURY
MERRIMACK RIVER
Relocated Rte 113
Rte 113
Pleasant Valley St
Broadway
Hilldale Ave
Main St
Glen Ave
North St
Newton St
Amesbury Rd
Locust St
Broadway
Emery St
Buttonwoods Rd
Middle Rd
Hunt Rd
Market St
Elm St
Martin Rd
Merrimack St
125 Connector
Relocation Rte 125
Old Rte 125
River St
Main St
INTERSTATE 495
95
97
110
113
125
108
N
MEDWAY
FRANKLIN
BELLINGHAM
HOPEDALE
WRENTHAM
FOXBOROUGH
PLAINVILLE
MANSFIELD
NORTH ATTLEBOROUGH
LAKE ARCHER
LAKE PEARL
TURNPIKE LAKE
109
140
126
1
1A
11
106
152
495
95
D
E
F
I
J
K
L

interstate route 495

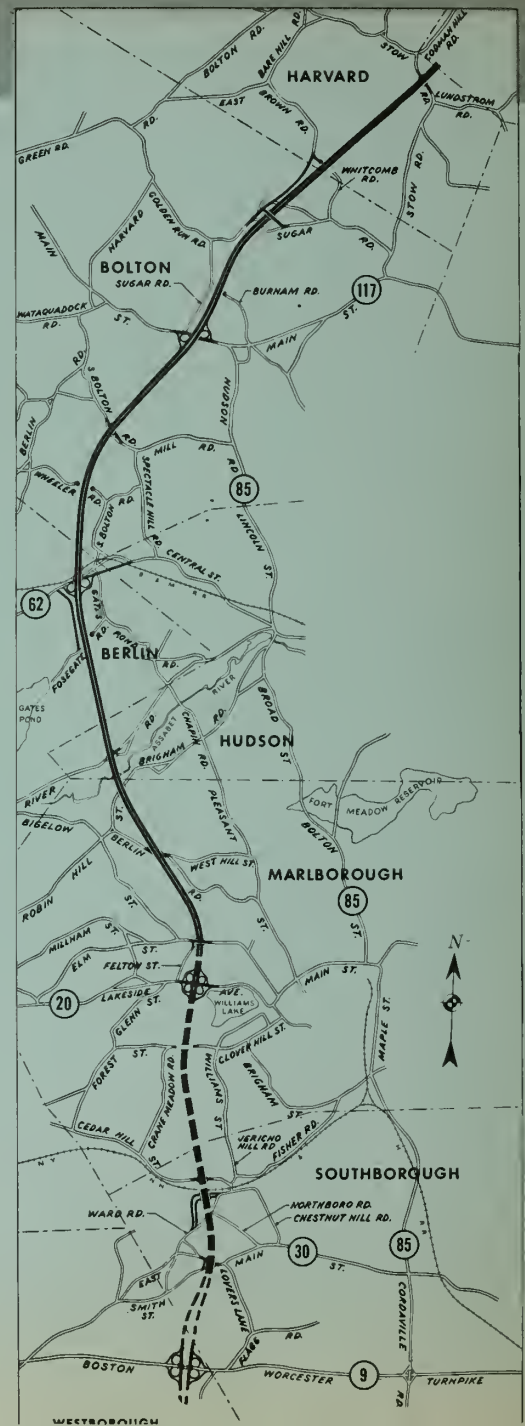
Thus, the loop, in addition to by-passing the heavily urbanized areas of the north, will provide a much needed boost to the economic development of cities and towns it serves by providing swift, easy access to all parts of the state and the nation.

The Belt will become a highly important distributor for traffic moving on the connecting radials to and from Boston. In addition to Interstate 95 at both ends of the Belt, it will interchange with such expressway systems as I-93, Route 3, Route 2 and the Massachusetts Turnpike, as well as with the older but still highly important routes 9, 20, and others.

Of the total of 87.3 miles, approximately 15 have been completed, and another 27.3 miles are under construction.

Beginning at the northeast, from Route 110 to Gile Street in Haverhill, 1.2 miles of construction has been begun, to be completed in late 1964, at a construction cost of nearly $2,000,000.

From Gile Street to River Street, work which was begun early in 1962, will be completed in the spring of 1964 at a cost of $5,329,860, 15 bridges are included in this 3.6 mile section.



I-495 Overpasses I-93 in Andover

From River Street, four separate contracts were required for the next 1.5 miles. These include substructure and superstructure contracts on both the Easterly Bridge and Westerly Bridge across the Merrimack River to Methuen. Contracts for the section of the highway in Methuen from the Westerly Bridge to Route 110 at Merrimack Street, were recently awarded and construction begun. This 1.5 mile project will cost slightly more than $2,000,000, and is expected to be completed in the summer of 1964. An additional 1 mile section from North of Route 110 to just above the North Andover-Lawrence Bridge over the Merrimack River was advertised for bids in September, and construction should begin at an early date.

The two-mile section from Incinerator Road in Lawrence to North Andover town line, including the decks and surface of the huge double-decked bridge over the Merrimack and a relocation of a portion of Marston Street, was advertised in October, at an estimated construction cost of $6,000,000.

From the North Andover-Lawrence town line westward to I-93 in Andover, a total of 3.4 miles, a low bid of $6,135,000 was received on October 9, 1962. A total of 13 bridges are included in the contract.

The section from the I-93 interchange in Andover to the Route 133 interchange at the Tewksbury line was completed and opened to traffic on May 25, 1962.

From Route 133 to Route 3 in Chelmsford construction has been under way since August 1961. Completion date for the project is October 1963.

Swinging southward from Route 2 in Littleton, a section from Route 2 through Boxboro to the Harvard town line is now under construction, a $2,400,000 project to be completed late in 1963 or early 1964.

The next 10 miles, from Harvard to Route 20 in Marlborough, is in the advanced design stage.

The section between Route 20 and Route 9 in Westborough, Southboro and Marlboro including very important interchanges at each of these major arteries to the west and south is now under construction. In two separate contracts totalling nearly $6,500,000, completion is expected in the summer of 1964.

Total cost of the completed Outer Belt will be close to $130,000,000.

the inner belt

LEGEND

- Existing Expressways
- Proposed Inner Belt I-695
- Northeast Expressway I-95 Under Study
- Northern Expressway I-93
- Northwest Expressway
- Routes 2 & 3
- Route 3
- Route 2
- Mass. Turnpike I-90 Under Construction
- Southwest Expressway I-95
- Major Highways

interstate route 695

Model of Proposed Inner Belt Route, Showing Crossing at Charles River

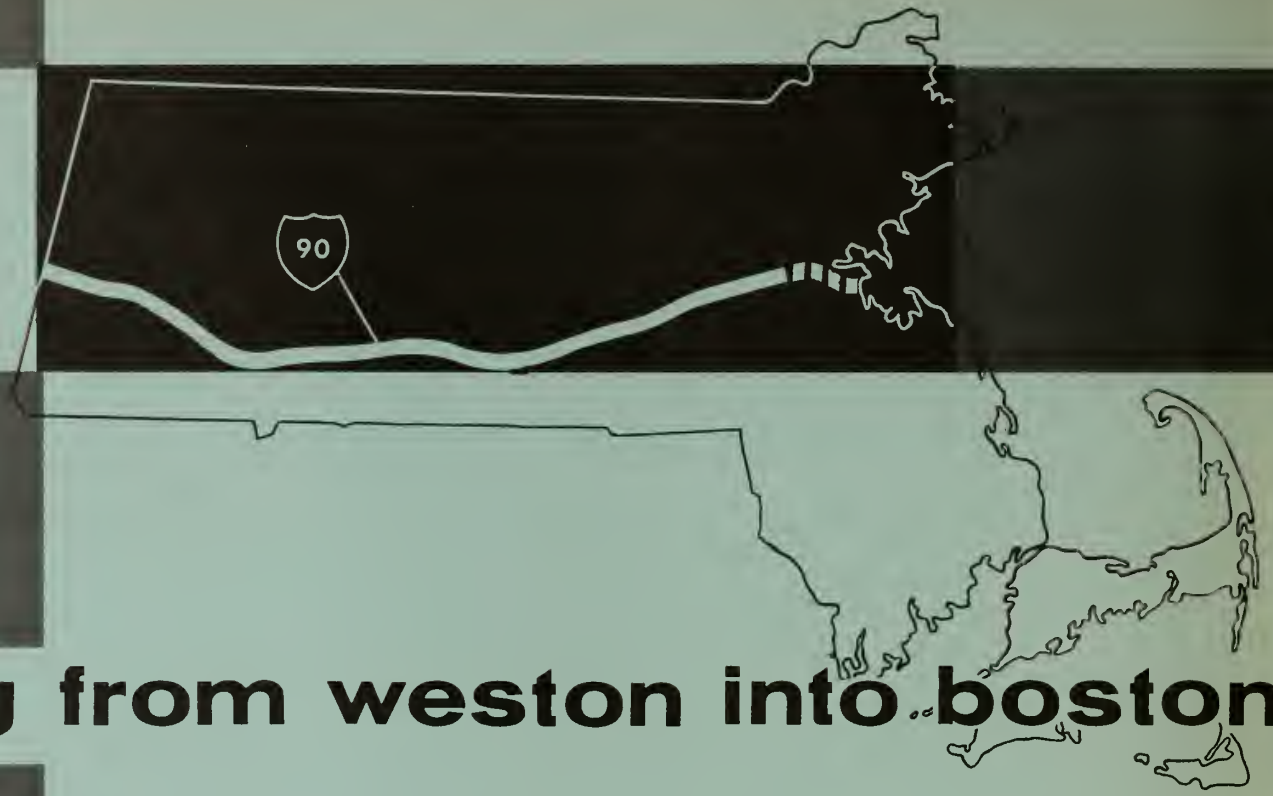
This Expressway, a very important segment of the highway network of the Boston Metropolitan Area, actually consists of Interstate Route 695 and a section of Interstate Route 95.

Its main function is to act as a collector-distributor for vehicular traffic to or from the various radial expressways, having destination in the core area of Metropolitan Boston and as an Interconnector for the transfer of vehicular traffic between the radial expressways for traffic with origin or destination, either in Metropolitan Boston or on any part of our highway System.

Most of the Route 95 section of the Inner Belt Expressway (John F. Fitzgerald Expressway) is now open to traffic. The success of this section of expressway is evidenced by the nearly one hundred-thousand vehicles that use this expressway daily. This expressway is also credited in part for the new development that is taking place along its route. This growth, although moderate at present, is expected to accelerate and will play an important part in the new Boston.

The long awaited final report of the Inner Belt and Expressway System of Metropolitan Boston was received on June 15, 1962. The receipt of this report has enabled the Department to proceed with the development of this important highway system and particularly Interstate Route 695. Although, some difficulty has been experienced in obtaining approval from city and town officials, with veto power for highway improvements in their respective municipalities, it is expected that the present differences can be resolved and the necessary engineering started to bring this expressway to a reality. Many conferences have already been held and others are planned. The suggestions made at these conferences are being reviewed, and the Department is also attempting to make adjustments that will make a recommended route acceptable to the municipalities.

mass. turnpike extension



coming from weston into boston

The final link of the Massachusetts Turnpike, between the present terminus at Route 128 in Weston and the Central Artery in Boston, is now under construction. It is expected that this section of highway will be opened to traffic late in 1964.

Under the control of the Massachusetts Turnpike Authority, this road is the only east-west expressway from Boston to the New York boundary.

the abc systems

primary, secondary and urban highways

50-50 program

The Commonwealth matches Federal funds on a 50-50 basis for construction of highways on the primary and secondary systems and their urban extensions. The allocations of Federal funds to this State are based on fixed formulas and this results in a definite quota of Federal funds which limits the extent of Department progress in improving these systems.

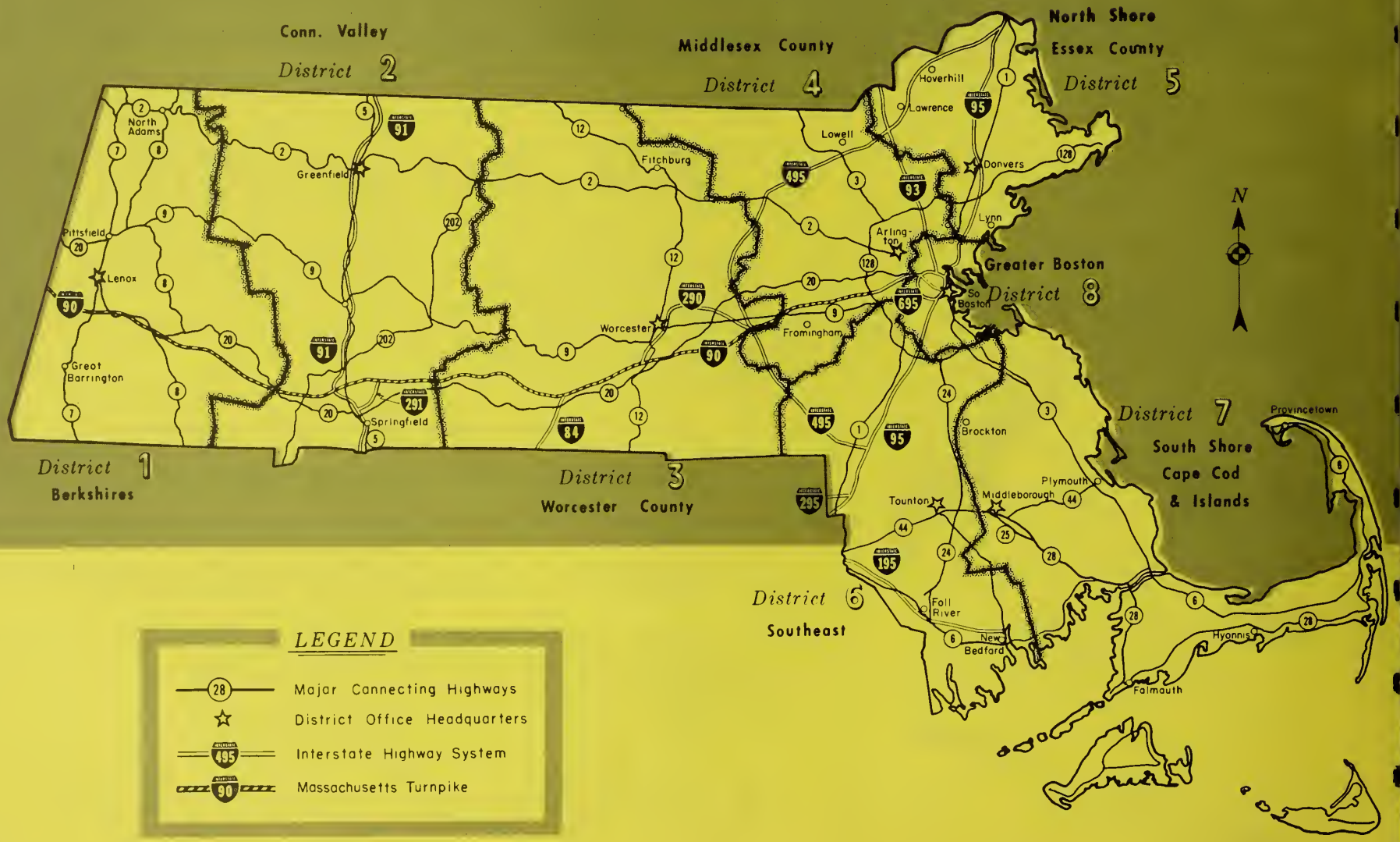
The ABC highway systems provide a network of roads which are vital to the economy of the cities and towns of Massachusetts. These highways are defined as follows:

Primary--	major highways
Secondary--	feeder roads and farm-to-market roads
Urban--	extensions into urban areas

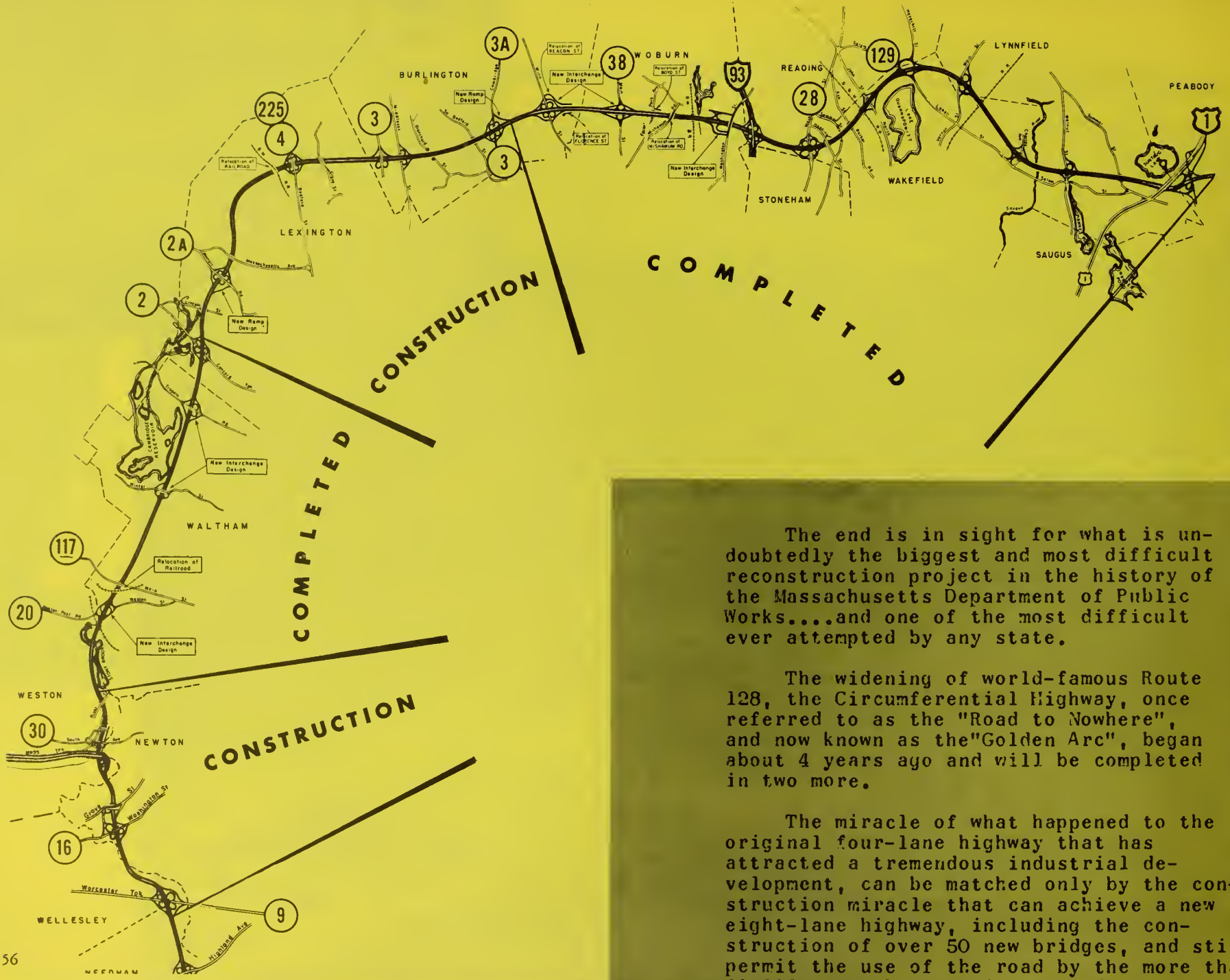
A continuing program of construction, reconstruction, relocation and resurfacing of these roads is conducted by the Department of Public Works to keep these roads safe and serviceable for ever-increasing traffic volumes.

As noted above the limited funds available for the ABC Systems are never sufficient to provide for the needs of the Commonwealth and, as a result, many worthwhile projects have to be deferred.

major improvements on abc highways



Completed Interchange at Routes 1 and 128 in Lynnfield and Peabody. Inset Shows Cramped Access Ramps before Reconstruction.



The end is in sight for what is undoubtedly the biggest and most difficult reconstruction project in the history of the Massachusetts Department of Public Works....and one of the most difficult ever attempted by any state.

The widening of world-famous Route 128, the Circumferential Highway, once referred to as the "Road to Nowhere", and now known as the"Golden Arc", began about 4 years ago and will be completed in two more.

The miracle of what happened to the original four-lane highway that has attracted a tremendous industrial development, can be matched only by the construction miracle that can achieve a new eight-lane highway, including the construction of over 50 new bridges, and still permit the use of the road by the more than 40,000 cars that use it every day.

reconstruction - route 128

All vital services and utilities required relocation, yet the needs of industrial, manufacturing, and research centers fringing the highway made it imperative that none of the utilities and services be interrupted.

At the present time, all segments of the giant reconstruction job from Route 1 at the Lynnfield-Peabody line, to Route 9 at the Needham-Wellesley line, a distance of 26 miles, are either completed, under construction, or awaiting the final award of bids.

The first modern, limited access roadway replacing the old meandering, town-linking country road, began in 1948 and was completed in June of 1952. The cost, a staggering $24,278,800.

This was considered an expensive folly that became the butt of jokes. Yet this was the magnet that drew new enterprise so rapidly that, before the jokes had ceased to be funny, the rising traffic count doomed the highway to inadequacy twenty years before its time.

The widening project will cost almost double the original construction cost...more than $48,000,000. The accompanying chart shows major contracts, etc.

RECONSTRUCTION OF ROUTE 128

ROUTE 9 NEEDHAM TO ROUTE 1 LYNNFIELD

W-Widening
R-Reconstruction
N-New

PROJECT	MILEAGE	TOTAL COST	DATE CONTRACT AWARDED	COMPLETION DATE PROPOSED	BRIDGES HIGHWAY	BRIDGES STREAM	BRIDGES RR
Needham-Wellesley U 229 (16) U 272 (56)	1.191	2,180,600	Expected Shortly	400 days	W1	W1	O
Wellesley-Newton-Weston U 272 (52)	1.533	4,872,200	9-12-61	2-1-64	W1 R3 N1	W2	R2
Newton-Ramps at Washington St. & Grove St. U 272 (29)	--	898,300	12-24-58	12-19-59	--	--	--
Newton-Weston U 272 (57)	.426	1,491,800	5-22-62	6-23-63	W2 R1	W1 R1	O
Weston-Waltham U 272 (44)	3.004	4,182,600	9-13-62	11-1-62	R2 N2	O	W1 R1 N2
Waltham DU 272 (32) (Grading & Drainage only)	--	389,100	11=4-58	9-14-59	--	--	--
Waltham-Lexington U 272 (45)	3.087	4,016,100	9-13-60	10-15-62	R3	--	--
Lexington U 272 (53) R.O.W. U 272 (46)	3.237	3,954,700	8-29-61	10-11-63	W1 R3	--	R1
Lexington-Burlington U 272 (60) R.O.W. U272 (47)	3.088	4,922,200	9-25-62	Not started 670 days	W2 R2	--	--
Burlington U 272 (49)	1.017	1,163,300	8-8-61	10-26-62	W1	--	--
Woburn U 272 (51) R.O.W. U272 (50)	1.422	1,526,200	12-19-61	12-1-62	R1 N2	--	--
Woburn U 272 (46) R.O.W. U272 (43)	1.297	1,520,000	3-7-61	Completed Oct. 1962	R2	--	W1
Interchange With Rte 93		Built as part of Rte 93 Contract					
Reading-Wakefield U 272 (40)	1.422	2,212,300	1-26-60	*11-27-61	W2 R1	--	--
Wakefield U 272 (35)	.720	825,700	5-19-59	*7-20-60	W1	--	W1
Wakefield U 272 (37)	.719	1,307,300	8-25-59	*8-21-61	W2	--	--
Lynnfield-Wakefield U 272 (34)	.678	846,600	4-7-59	*7-1-60	W1	W1	W1
Lynnfield-Wakefield DU 272 (30)	1.117	688,700	10-28-58	*10-14-59	--	--	--
Wakefield-Lynnfield U 272 (41)	1.040	1,113,900	5-17-60	*10-7-61	W1	--	--
Lynnfield DU 272 (31)	0.757	524,400	10-28-58	*9-30-59	W2	W1	--
Lynnfield-Peabody U 272 (36) (Incl. Rte 1 Interchange)	1.374	7,511,600	9-1-59	10-6-62	W1 N6	--	--
Lynnfield-Reading-Wakefield R.O.W. only U272 (42)	--	1,829,000	--	--	--	--	--
Lynnfield-Service Road U 272 (54)	--	86,700	12-5-61	6-26-62	--	--	--
Lynnfield-Wakefield Roadside Development U 272 (56)	--	32,200	11-30-61	10-15-62	--	--	--
Wakefield-U 272 (59) Roadside Development	--	92,300	5-29-62	10-15-62	--	--	--
Wakefield-U 272 (55) Roadside Development	--	41,900	11-30-61	10-15-62	--	--	--
TOTAL	27.129	48,229,700		*COMPLETED			

the lowell connector

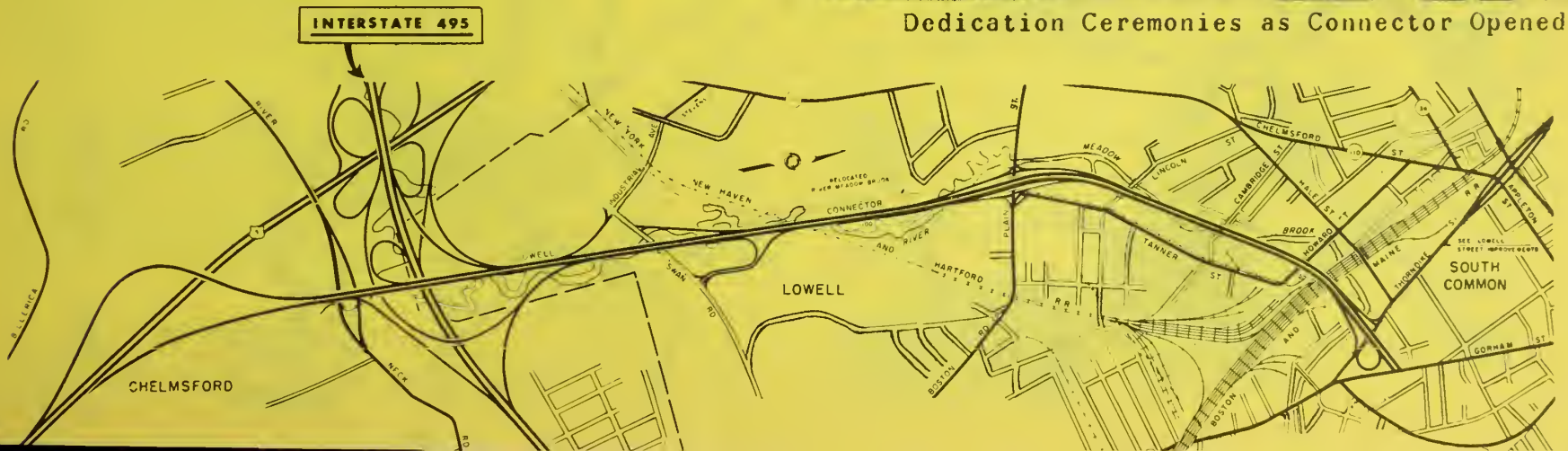
The Lowell Connector - a vital expressway link between the downtown city and Interstate Route 495, the Outer Belt was formally opened to traffic on October 24, 1962.

This Connector 2.5 miles in length, serves an important role for relief of local traffic.

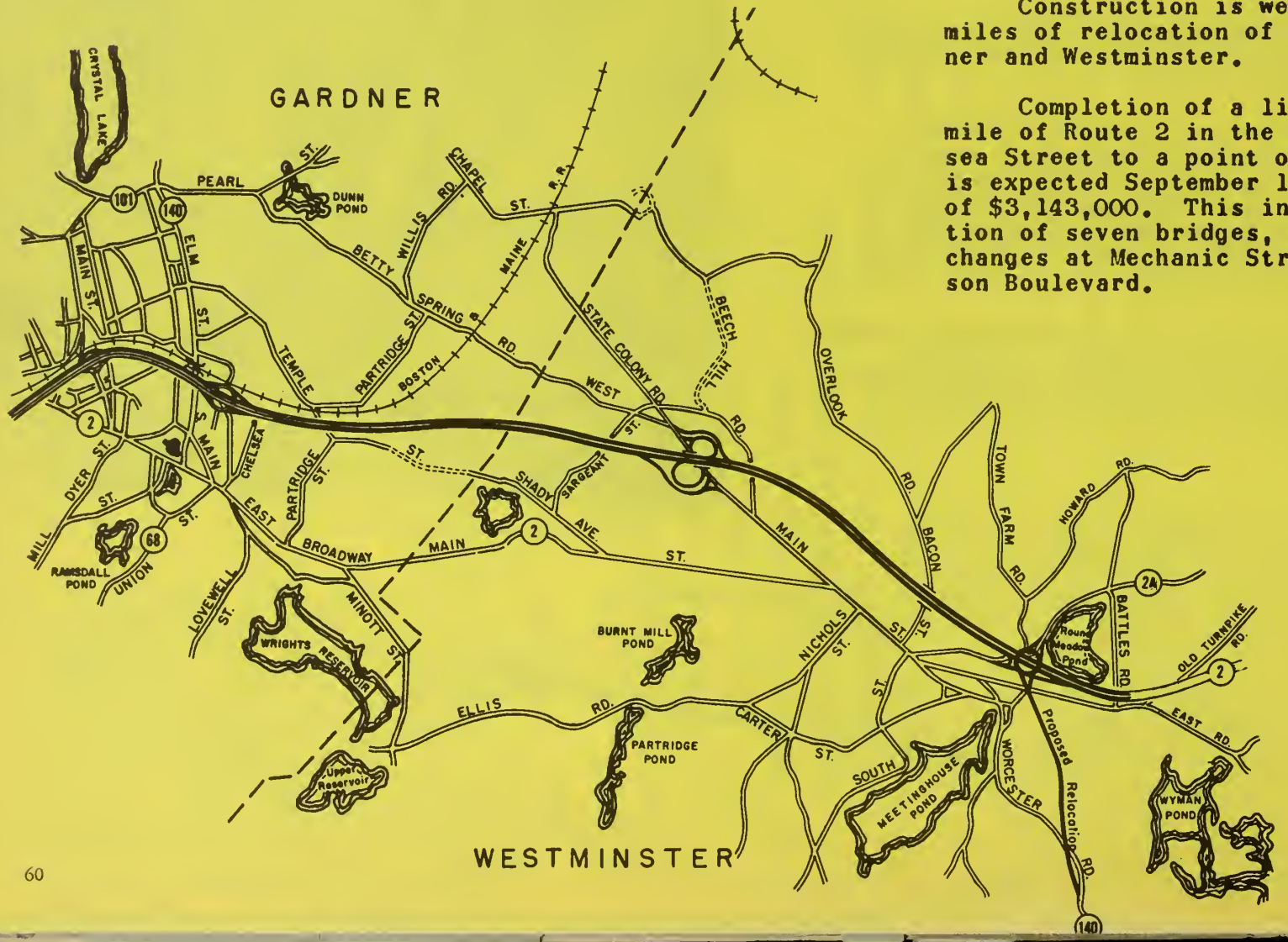
The four-lane divided highway extends from Thorndike Street in Lowell to the junction of Interstate Route 495 and Route 3 at the Chelmsford-Lowell line. This $8,000,000 project ranks as one of the major projects completed this year.

An integral part of the project was the erection of a chemical treatment plant for purification of new wells which replaced those disturbed by construction.

Dedication Ceremonies as Connector Opened



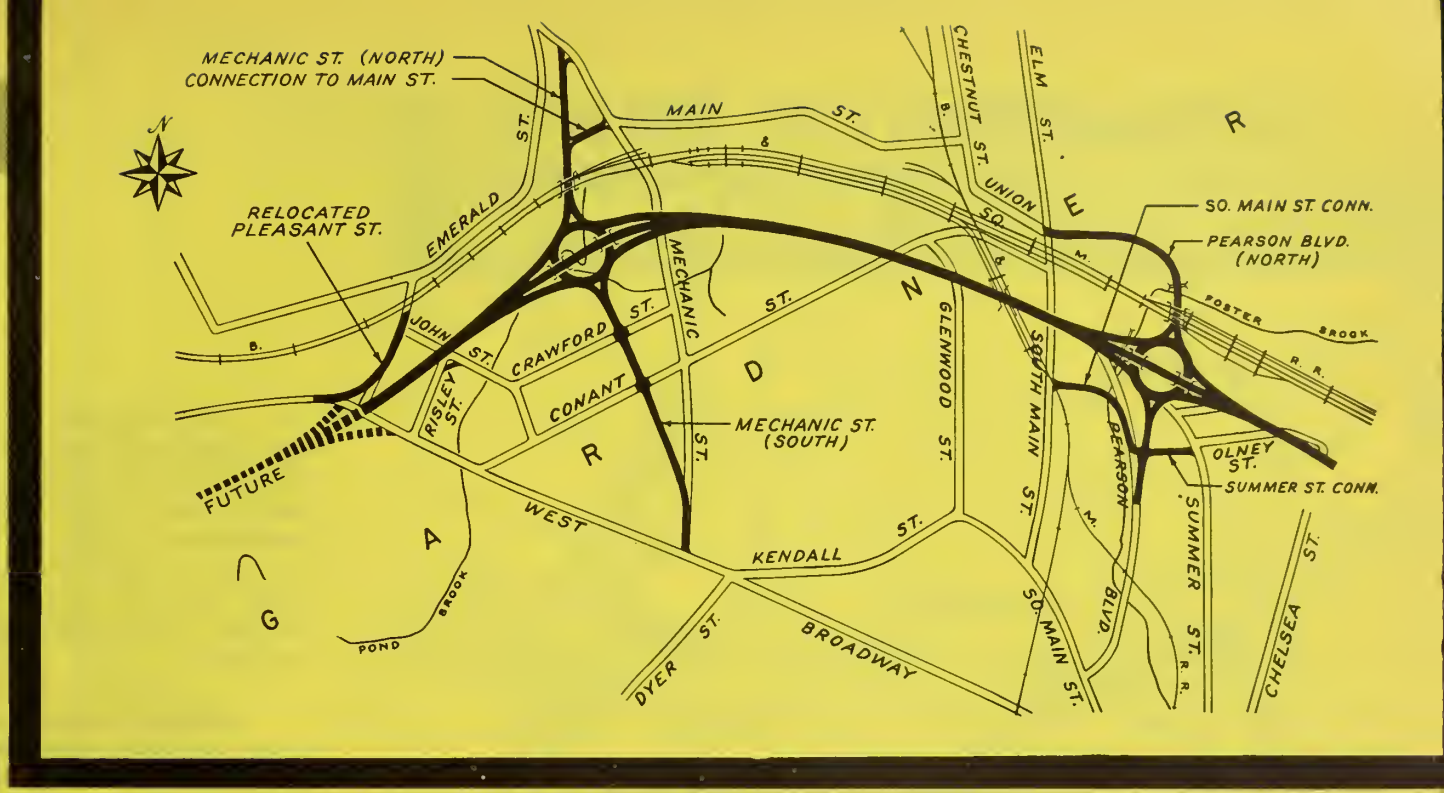
relocation of route 2 in westminster



Construction is well underway on 3½ miles of relocation of Route 2 in Gardner and Westminster.

Completion of a little more than a mile of Route 2 in the vicinity of Chelsea Street to a point on West Broadway is expected September 1, 1963 at a cost of $3,143,000. This includes construction of seven bridges, and rotary interchanges at Mechanic Street and at Pearson Boulevard.

gardner

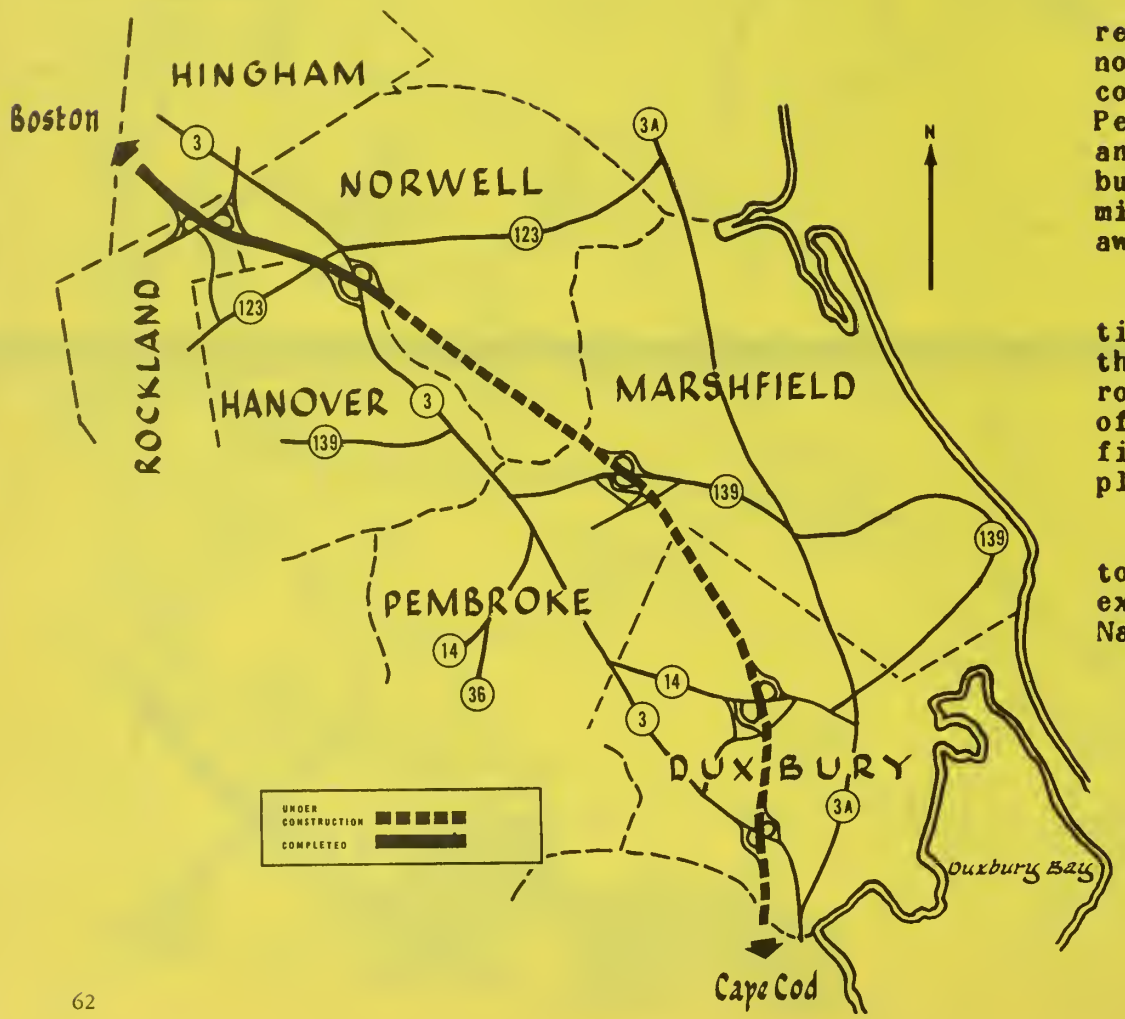


Easterly, from a point in Chelsea Street, Gardner, to a point east of West Main Street, Westminster, completion of a second project costing $2,263,000, is scheduled to coincide during the same period in 1963. Both contracts were awarded during the fall of 1961.

This four-lane divided, limited access highway will interchange with West Main Street and will continue easterly to a connection with present Route 2. Future plans call for relocation of Route 140 in Westminster, by-passing the village.

Basic design from the point in Battles Road, Westminster, linking the highway to existing Route 2, running east and west is now underway.

relocation of route 3
pilgrims highway



The final 11 miles of the Route 3 relocation, or Pilgrim's Highway, is now under construction. Two separate contracts, the first from Hanover to Pembroke - 5.1 miles to cost $3,654,652, and the second from Pembroke to the Duxbury end of existing expressway, 6.1 miles to cost $3,500,000, have been awarded.

Both contracts call for a completion date in December of 1963. By 1964, the motorist bound to Cape Cod via this route will be able to travel to the tip of Provincetown without a single traffic light to impede his fast, safe, pleasant drive.

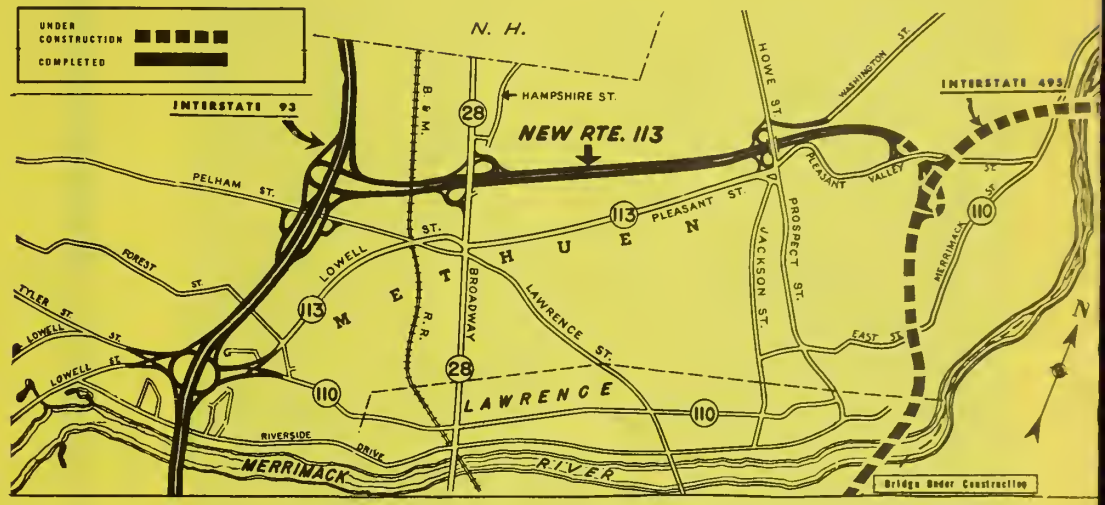
The highway should be open in time to serve much of the increased traffic expected after the opening the Cape Cod National Seashore.

route 113 - methuen

The second section of the Route 113 relocation in Methuen was completed on September 11, 1962, at which time the entire highway was dedicated as the Albert Slack Memorial Highway.

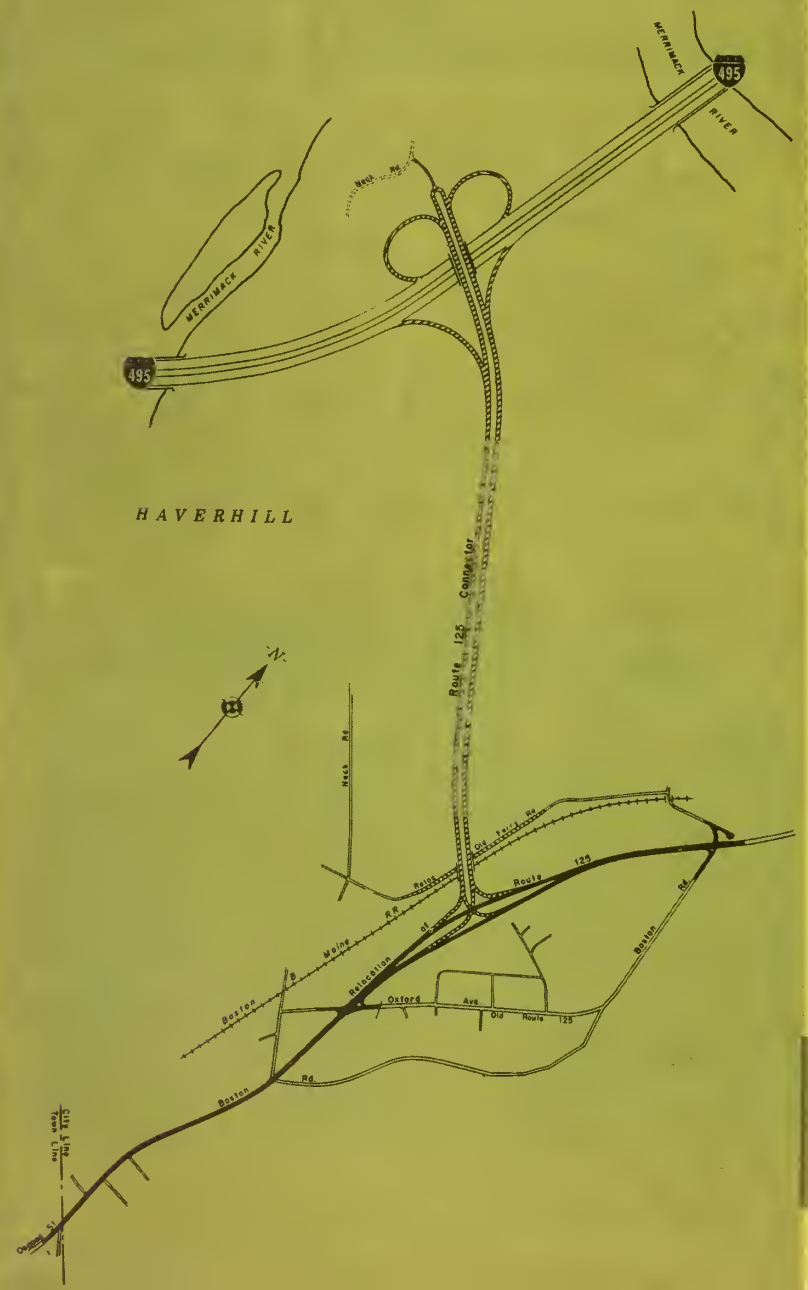
Built at a cost of approximately $750,000, the 1.5 mile section extends easterly generally along Pleasant Valley Street. The final interchange link with Interstate 495 will be included in new construction on I-495 from Merrimack Street to the Haverhill-Westerly Bridge over the Merrimack River.

The four-lane divided highway will be part of a complete expressway belt around the City of Lawrence, and Town of Methuen with 113 its northern side, I-495 on the east and south, and I-93 on the west.



Mr. and Mrs. Frank Slack Cut Ribbon as Commissioner Ricciardi Looks On

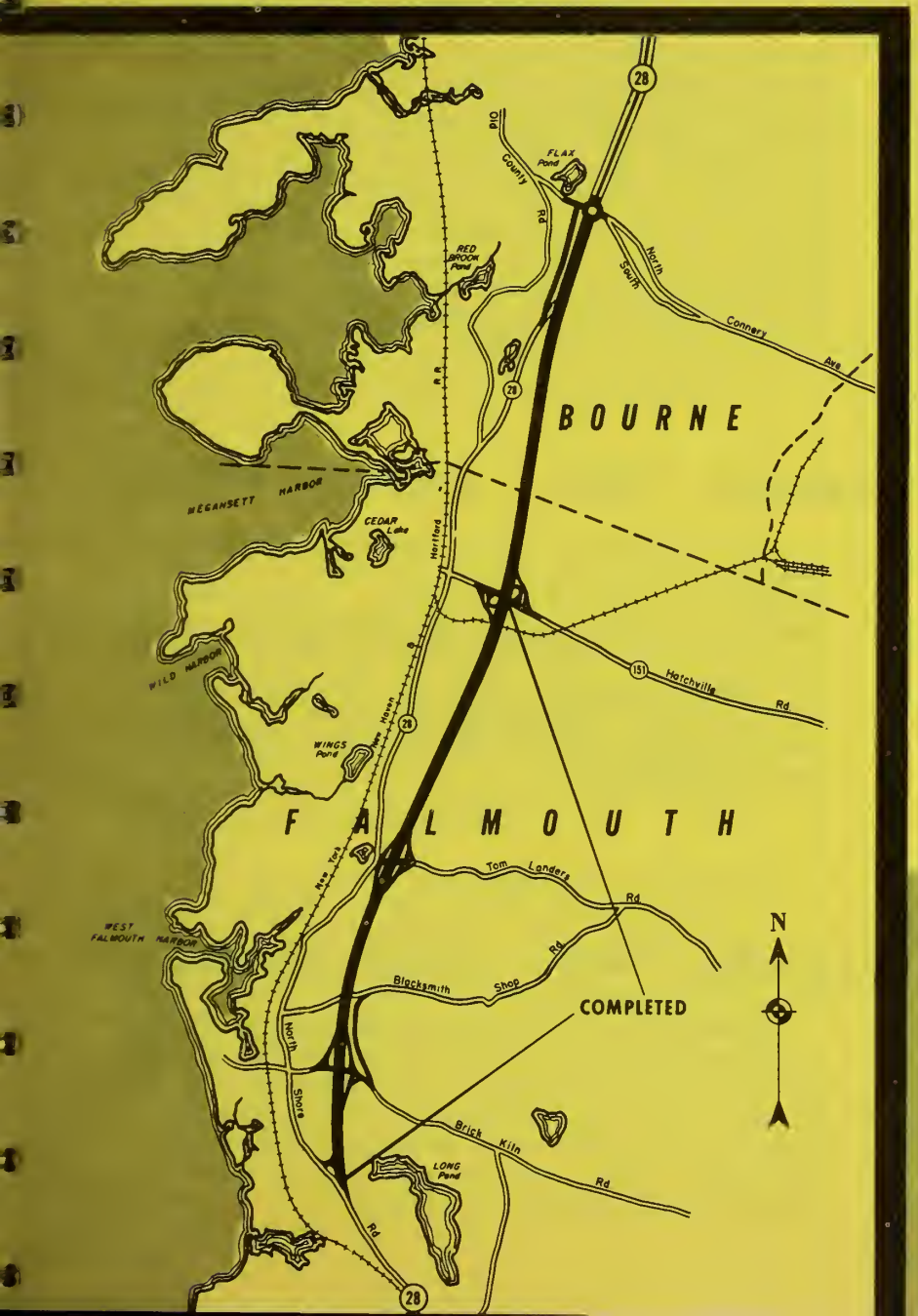
route 125 connector haverhill



Construction work is progressing on schedule on this expressway connector from Route 125 to Interstate 495. The expected date of completion is the summer of 1963, when this section of 495 will be ready for service.

Other sections of Route 125 that were relocated are now open to traffic.

route 28 in falmouth



With 5.2 miles of the expressway relocation of Route 28 from Falmouth to the Bourne Bridge over the Cape Cod Canal already completed, a third section is now under construction.

Beginning with the present northerly terminus at the Hatchville Road, this section will extend to the entrance of the Otis Air Force Base, a distance of 2.8 miles. The construction cost will be $1,210,000, and the expected date of completion is mid-summer of 1964.

Additional right-of-way takings have been made between the Air Force Base and the Canal in anticipation of future construction.

route 25
middleboro - raynham

Before 1964 motorists Cape-bound via the Fall River Expressway (Amvets Memorial Highway) will be able to by-pass Route 44 at Taunton. Two separate contracts for the construction of a northwesterly extension of Route 25 from its present terminus at Route 44 in Middleboro have recently been awarded. Together they total $2,211,673 for 3.7 miles of twin, limited access roadways, which will link with Route 24 (the Fall River Expressway) in Raynham.

The Contract completion date for both sections has been set for December, 1963.

Future plans call for the completion of Route 25 southeastward from its lower junction at Route 28 in South Middleboro. The extension would carry it close to the town of Wareham to a junction with Route 3 near the Cape Cod Canal, thus providing expressway travel all the way from Boston to Buzzard's Bay and the Cape. Construction will depend on availability of funds.

route 123 - abington

The center section of a three-part reconstruction project on Route 123 between Rockland and Brockton, known locally as the "Rockland Gap", has been completed. A $177,000 mile-and-a-quarter section, capable of handling the 12,000 cars per day forecast for 1980, it now links the outer portions already completed, and provides smoother, safer, and faster highway communication between Brockton, Abington, and Rockland.

route 102 - stockbridge

Construction was started on approximately two miles of Route 102 in Stockbridge in May of this year. The modernization of this section to Federal standard will be completed in November.

This project costing about $265,000 will divert traffic from local streets, thus, providing better traffic service to this community.

route 143 - chesterfield

Route 143 in Chesterfield has been widened from a narrow two-lane road only 18 to 20 feet between soft shoulders, to a full 24 feet with paved shoulders. The road serves as a main connector of several rural communities in western Hampshire County.

route 116 - savoy

The final one and one-half mile stretch of Route 116 in Savoy was completed this fall at a cost of $300,000. This completes the reconstruction and improvement of this route in Berkshire County.

The highway, an east-west connector in northern Berkshire County, runs from Adams to the Connecticut River at South Deerfield, then turns southward passing through Amherst and Holyoke to Springfield.

route 43 - hancock

Route 43 in Hancock serves the dual purpose of lifeline for that community, and a connecting road from Vermont to New York state across the northwestern corner of Massachusetts.

On the western slopes of the Berkshires, steep grades have made this a winter driving hazard. New construction for 2.4 miles, with regrading and elimination of dangerous curves, will make the highway, famous for the breathtaking beauty of its scenery, much safer.

holmes road north attleboro

Elimination of dangerous hazards was the primary factor in the reconstruction of Holmes Road, an un-numbered connector between North Attleboro and Cumberland, Rhode Island. A narrow roadway, steep grades, and heavy commercial traffic between the two states made action necessary.

In cooperation with Rhode Island a new route for relocation was laid out, and construction begun with Federal Aid in August, 1962 on a mile of highway in Massachusetts, connecting with similar reconstruction in Rhode Island. Target date for completion is May, 1963, and cost of the Massachusetts section will be $160,000.

The new roadway will have two 12 foot lanes, plus eight foot paved shoulders. In addition, an extra truck-climbing lane is provided on the steep up grades.

chapters 90 and 81

WELLFLEET

ACUSHNET

ROCHESTER

state aid to cities & towns for highway building

Section 34 of Chapter 90 of the General Laws provides for making some of the Highway Fund available for expenditure, under the direction of the Department of Public Works, for maintaining, repairing, improving and constructing municipal and county highways, together with matching funds which the municipality and county appropriates for said purpose.

In the distribution of State funds, the Department sets up a quota for each county, which is based on population, mileage of municipal ways and area; the formula currently being used gives a 40% weight to population, 40% to mileage and 20% weight to area. This formula is also used as a guide to determine the amount to be set up for each city or town.

chapter 90

Generally the state pays one half the cost of construction on projects eligible for Chapter 90 participation, with the county and the local community each contributing a quarter of the cost. Maintenance allotments are divided equally, so that state, county, and municipality each contribute one third.

The Chapter 90 outlay for the period from October 1961 to October 1962 totals $10,820,670, with the Commonwealth's share $5,201,544.

chapter 81

Chapter 81 of the General Laws provides for the expenditure of funds for the repair and improvement of public ways, other than State highways, in towns having a valuation under $5,000,000 and a road mileage ratio of less than twelve.

The road mileage ratio is determined by dividing the proportionate part of the State tax per million by the number of miles of public ways, exclusive of State highways, in each town. The State appropriates $275.00 per mile and the town contributes from $15.00 per mile as a minimum to $150.00 per mile as a maximum based on the road mileage ratio.

There are 9641 miles of town ways located in the 182 towns eligible for Chapter 81 expenditures. The work consists of patching, widening, reshaping or resurfacing with gravel or other suitable material, as well as surface treating with bituminous material.

QUINCY

The Chapter 81 program for the year 1962 totals $3,469,910, with the state's share, $2,651,275.

In addition, in accordance with Chapter 782, Acts of 1962, a total of $10,000,000 of state funds was apportioned among all the cities and towns of the Commonwealth, to be used for local highway purposes to be approved by the Department. No other matching funds are involved.

state aid program

BARNSTABLE COUNTY

	STATE	TOWN	COUNTY	TOTAL
BARNSTABLE - Craigville Beach Rd.	97,000	48,500	48,500	194,000
BREWSTER - Brewster Harwich Rd.	10,000	5,000	5,000	20,000
CHATHAM - Queen Anne Rd.	28,000	14,000	14,000	56,000
DENNIS - Upper County Rd. & East-West Dennis Rd.	15,000	7,500	7,500	30,000
FALMOUTH - Dillingham Ave. & Brick Kila Rd.	18,000	9,000	9,000	36,000
HARWICH - Queen Anne Rd.	8,000	4,000	4,000	16,000
MASHPEE - Cotuit Rd.	9,000	4,500	4,500	18,000
ORLEANS - Main St.	23,000	11,500	11,500	46,000
PROVINCETOWN - Howland St.	20,000	10,000	10,000	40,000
SANDWICH - Cotuit Rd.	17,500	8,750	8,750	35,000
TRURO - Kings Highway	6,000	3,000	3,000	12,000
WELLFLEET - Lieutenants Island Rd.	13,000	6,500	6,500	26,000
YARMOUTH - Union St.	14,500	7,250	7,250	29,000
TOTALS	279,000	139,500	139,500	558,000

BERKSHIRE COUNTY

	STATE	TOWN	COUNTY	TOTAL
ALFORD- North Egremont Rd.	3,500	1,750	1,750	7,000
BECKET - Yokum Pond, Wade Inn & Tyne Rds.	9,000	4,500	4,500	18,000
CHESHIRE - Fales Rd.	8,000	4,000	4,000	16,000
CLARKSBURG - East Street & Walker St.	2,600	1,300	1,300	5,200
DALTON - Housatonic St. Bridge	40,000	20,000	20,000	80,000
EGREMONT - Creamery Rd.	6,000	3,000	3,000	12,000
FLORIDA - Tilda Hill Rd. Whitcomb Hill & Shaft Rd.	12,000	6,000	6,000	24,000
GREAT BARRINGTON - Cottage St. Bridge	50,000	25,000	25,000	100,000
HANCOCK - Brodie Mt. Rd.	4,000	1,000	1,000	6,000
HINSDALE - Pittsfield Rd. & Plunkett Reservoir Rd.	6,000	3,000	3,000	12,000
LEE - East St.	15,000	7,500	7,500	30,000
LENOX - East St., Housatonic St.	8,000	4,000	4,000	16,000
MONTEREY - Sandisfield	5,000	2,500	2,500	10,000
MOUNT WASHINGTON - East St.	3,000	1,500	1,500	6,000
NEW ASHFORD - Ingraham Rd.	1,000	500	500	2,000
NEW MARLBORO - Norfolk Rd.	12,000	6,000	6,000	24,000
NORTH ADAMS - Notch Rd.	16,500	8,250	8,250	33,000
NORTH ADAMS - Union St.	5,000	2,500	2,500	10,000
PERU - East Windsor Rd.	5,000	2,500	2,500	10,000
PITTSFIELD - Crane Ave.	20,000	10,000	10,000	40,000
RICHMOND - Swamp & Summitt Rds.	5,600	2,800	2,800	11,200
SANDISFIELD - Cold Springs Rd.	12,000	6,000	6,000	24,000
SAVOY - Chapel & Center Rds.	10,000	5,000	5,000	20,000
STOCKBRIDGE - Glendale-Middle Rds.	8,000	4,000	4,000	16,000
TYRINGHAM - Main Rd.	6,000	2,000	2,000	10,000
WEST STOCKBRIDGE - Cobb Rd., Baker St. & Pittsfield Rd.	6,000	3,000	3,000	12,000
WILLIAMSTOWN - Sloan Rd.	16,000	8,000	8,000	36,000
WINDSOR - River Rd., Main Rd. Dalton Rd.	9,000	1,500	1,500	12,000
TOTALS	304,200	147,100	147,100	598,400

BRISTOL COUNTY

	STATE	TOWN	COUNTY	TOTAL
ACUSHNET - Middle Rd.	40,000	20,000	20,000	80,000
ATTLEBORO - Holden St. Bridge & Starkey Ave.	123,000	61,500	61,500	246,000
FAIRHAVEN - Bridge St.	15,000	7,500	7,500	30,000
FALL RIVER - Weaver St. Bridge Repairs	9,000	4,500	4,500	18,000
FREETOWN - East Howland & Locust Sts.	12,000	6,000	6,000	24,000
MANSFIELD - Franklin St.	12,000	6,000	6,000	24,000
NORTON - Dean St.	12,000	6,000	6,000	24,000
RAYNHAM - Elm & Center Sts.	18,000	9,000	9,000	36,000
SEEKONK - Newman Ave.	15,000	7,500	7,500	30,000
TAUNTON - Hart St.	47,000	23,500	23,500	94,000
WESTPORT - Main Rd.	21,000	10,500	10,500	42,000
TOTALS	324,000	162,000	162,000	648,000

DUKES COUNTY

	STATE	TOWN	COUNTY	TOTAL
CHILMARK - Middle Rd.	5,000	2,500	2,500	10,000
EDGARTOWN - Herring Creek Rd. & Atlantic Drive	7,500	3,750	3,750	15,000
GAY HEAD - Mashpee Trail	17,000	---	5,000	22,000
GOSNOLD - Rd. to Lookout & Bayberry Hill Rd.	8,000	4,000	4,000	16,000
OAK BLUFFS - Wing Rd.	5,000	2,500	2,500	10,000
TISBURY - Daggett Ave., Owen Ave. Vineyard Haven, Edgartown Rd., Main St.	4,000	2,000	2,000	8,000
WEST TISBURY - Lambert's Cove Rd. & Indian Hill Rd.	6,000	3,000	3,000	12,000
TOTALS	52,500	17,750	22,750	93.000

ESSEX COUNTY

	STATE	TOWN	COUNTY	TOTAL
AMESBURY - Pleasant Valley Rd.	15,000	7,500	7,500	30,000
ANDOVER - Dascomb Rd. & High St.	27,000	13,500	13,500	54,000
BOXFORD - Topsfield Rd. & Washington St.	12,000	6,000	6,000	24,000
DANVERS - Sylvan, Poplar, Maple & High Streets	20,000	10,000	10,000	40,000
GEORGETOWN - Andover St.	14,000	7,000	7,000	28,000
GROVELAND - School St.	6,000	3,000	3,000	12,000
HAMILTON - Bridge & Walnut Sts.	9,000	4,500	4,500	18,000
HAVERHILL - No. Broadway, Lamoille Ave., Lowell Ave., Wash. St., River St., Blossom St., Bradford Ave., Memorial Ave., Water St. Fifth Ave. & Sixth Ave.	52,000	26,000	26,000	104,000
IPSWICH - Topsfield Rd.	33,000	16,500	16,500	66,000

ESSEX COUNTY

	STATE	TOWN	COUNTY	TOTAL
LAWRENCE - Broadway, West St., Essex St., Holly St., Daisy St., Spruce St., Ames St., Olive Ave., Yale St., Hillside Ave.	59,000	29,500	29,500	118,000
LYNN - Jenness St.	25,000	12,500	12,500	50,000
LYNNFIELD - Summer St.	8,000	4,000	4,000	16,000
MANCHESTER - Vine St., Brook St. Union St., Desmond Ave.	6,000	3,000	3,000	12,000
MARBLEHEAD - Nanepashemet St., Atlantic Ave., W. Shore Drive, Ocean Avenue, & Harbor Ave., Pleasant St.	17,000	8,500	8,500	34,000
MERRIMAC - River Rd.	6,000	3,000	3,000	12,000
METHUEN - Lowell St., Woodland St., Pleasant St., Cross St., & R. R. Square	31,000	15,500	15,500	62,000
MIDDLETON - Forest St.	6,000	3,000	3,000	12,000
NAHANT - Emerald Rd., Valley Rd., & Castle Rd.	4,000	2,000	2,000	8,000
NEWBURY - Plum Island Rd., Parker St., & Hanover St. Bridge	10,000	5,000	5,000	20,000
NEWBURYPORT - Parker St., Merrimac St., Moseley Ave.	17,000	8,500	8,500	34,000
NORTH ANDOVER - Appleton St.	10,000	5,000	5,000	20,000
PEABODY - Prospect St.	40,000	20,000	20,000	80,000
ROCKPORT - Thatcher Rd.	7,000	3,500	3,500	14,000
ROWLEY - Haverhill St.	13,000	6,500	6,500	26,000
SALEM - Dunlap, Tremont, Pleasant, Salem, Linden, Kirnwood, Essex Sts., Washington Sq., Liberty Hill & Highland Aves. Swampscott Rd., Federal St.	33,000	16,500	16,500	66,000
SALISBURY - R.R. Ave., Ferry Rd., Folly Mill Rd., & Elmwood St.	7,000	3,500	3,500	14,000
SWAMPSCOTT - Burrill St., Humphrey St., Salem St., Puritan Rd. & Atlantic Ave.	13,000	6,500	6,500	26,000
TOPSFIELD - Ipswich Rd.	9,000	4,500	4,500	18,000
WENHAM - Grapevine Rd.	10,500	5,250	5,250	21,000
TOTALS	519,500	259,750	259,750	1,039,000

FRANKLIN COUNTY

	STATE	TOWN	COUNTY	TOTAL
ASHFIELD - Cummington Rd. & Ludwig Rd.	9,000	4,500	4,500	18,000
BUCKLAND - Bray Rd.	8,000	4,000	4,000	16,000
CHARLEMONT - South River Rd.	9,000	4,500	4,500	18,000
COLRAIN - Greenfield Rd.	8,000	4,000	4,000	16,000
CONWAY - Shelburne Falls Rd., Main Poland Rd. & So. Ashfield Rd.	10,000	5,000	5,000	20,000
ERVING - Mountain Rd.	10,500	5,250	5,250	21,000
GILL - West Gill Rd.	6.000	3,000	3,000	12,000
GREENFIELD - Mountain Rd.	13,000	6,500	6,500	26,000
HAWLEY - East Hawley Rd.	6,000	3,000	3,000	12,000
HEATH - Colrain & Burrington Rds.	10,000	5,000	5,000	20,000
LEVERETT - Shutesbury Rd. Bridge	6,000	2,000	2,000	10,000
LEVERETT - Cave Hill Rd., Montague Rd., North & Shutesbury Rd.	4,000	2,000	2,000	8,000
LEYDEN - West Leyden Rd.	7,200	3,600	3,600	14,400
MONROE - Kingsley Hill Cut Off, Readsborough Rd.	9,000	2,500	2,500	14,000
MONTAGUE - Leverett Rd.	18,000	9,000	9,000	36,000
NORTHFIELD - Gulf Rd.	12,500	6,250	6,250	25,000
ORANGE - East River St., No. Orange Rd.	6,250	3,125	3,125	12,500
ORANGE - North Main St., & West River Rd.	8,600	4,300	4,300	17,200
SHELBURNE - Bardwell Ferry Rd.	9,000	4,500	4,500	18,000
SHUTESBURY - West Pelham Rd.	7,000	3,500	3,500	14,000
SUNDERLAND - Montague Rd.	4,000	2,000	2,000	8,000
WARWICK - Wendell & Athol Rds.	11,800	5,900	5,900	23,600
WENDELL - Millers Falls & Farley Rd.	6,000	3,000	3,000	12,000
WHATELY - River Rd.	6,000	3,000	3,000	12,000
TOTALS	204,850	99,425	99,425	403,700

HAMPDEN COUNTY

	STATE	TOWN	COUNTY	TOTAL
AGAWAM - North St.	16,000	8,000	8,000	32,000
BLANDFORD - North Blandford & Huntington Rds.	8,000	2,500	4,500	15,000
BRIMFIELD - Monson Rd.	10,000	5,000	5,000	20,000
CHESTER - Middlefield Rd.	10,000	5,000	5,000	20,000
CHICOPEE - Carew St.	26,000	13,000	13,000	52,000
EAST LONGMEADOW - Pleasant St. & Shaker Rd.	10,000	5,000	5,000	20,000
GRANVILLE - Main St.	15,500	7,750	7,750	31,000
HAMPDEN - Chapin & So. Monson Rd.	7,000	3,500	3,500	14,000
HOLLAND - Stafford Rd.	5,000	2,500	2,500	10,000
HOLYOKE - Homestade Ave.	24,000	12,000	12,000	48,000
LONGMEADOW - Laurel St.	11,250	5,625	5,625	22,500
LUDLOW - West Street	18,000	9,000	9,000	36,000
MONSON - Wales & Upper Hampden Rds.	20,000	10,000	10,000	40,000
MONTGOMERY - Carrington Rd.	4,750	2,375	2,375	9,500
PALMER - Shearer & Calkins Rd.	17,000	8,500	8,500	34,000
SOUTHWICK - Granville Rd.	13,100	6,550	6,550	26,200
SPRINGFIELD - Plumtree Rd.	109,000	54,500	54,500	218,000
SPRINGFIELD - Springfield St. & Reloc. at Water Rd.	29,000	14,500	14,500	58,000
TOLLAND - New Boston Rd.	13,000	5,500	6,500	25,000
WALES - Hollow Rd.	4,000	2,000	2,000	8,000
WESTFIELD - Union St.	40,000	20,000	20,000	80,000
WILBRAHAM - Monson Rd. & South Main St. Drainage	13,000	6,500	6,500	26,000
TOTALS	423,600	209,300	212,300	845,200

state aid program

HAMPSHIRE COUNTY

	STATE	TOWN	COUNTY	TOTAL
BELCHERTOWN - Turkey Hill Rd.	10,000	5,000	5,000	20,000
BELCHERTOWN - Bay Rd.	2,000	1,000	1,000	4,000
CHESTERFIELD - South St. Bridge	13,200	4,400	4,400	22,000
CHESTERFIELD - Cummington & Roberts Meadow Rds.	5,000	2,500	2,500	10,000
CUMMINGTON - West Cummington Rd.	6,000	3,000	3,000	12,000
GOSHEN - Sears Rd.	4,000	2,000	2,000	8,000
GRANBY - Amherst St.	10,000	5,000	5,000	20,000
HADLEY - Bay Rd., East St. & South Maple St.	12,500	6,250	6,250	25,000
MIDDLEFIELD - East River Rd. & Town Hill Rd.	7,000	3,500	3,500	14,000
NORTHAMPTON - Brush Shop Bridge	50,400	26,500	23,900	100,800
PELHAM - Shutesbury & Buffam Rds.	4,000	2,000	2,000	8,000
PLAINFIELD - South St. & Central St.	5,000	2,500	2,500	10,000
SOUTH HADLEY - Hockanum Rd. & Mosier St.	16,000	8,000	8,000	32,000
SOUTHAMPTON - Fomer Rd.	12,000	6,000	6,000	24,000
WESTHAMPTON - Main & No. West Rds.	8,000	4,000	4,000	16,000
TOTALS	165,100	81,650	79,050	325,800

MIDDLESEX COUNTY

	STATE	TOWN	COUNTY	TOTAL
ARLINGTON - Mystic St., Warren St. Park Ave., Mass. Ave.	62,900	31,450	31,450	125,800
ASHBY - South Rd.	10,800	3,600	7,200	21,600
ASHLAND - Fruit St. & Eliot St.	9,400	4,700	4,700	18,800
AYER - Old Groton Rd. & West Main St.	5,300	2,650	2,650	10,600
BILLERICA - Treble Cove Rd. & Middlesex Turnpike	40,500	20,250	20,250	81,000
BOXBOROUGH - Liberty Square Rd.	3,780	1,260	2,520	7,560
CARLISLE - East St.	6,400	3,200	3,200	12,800
CHELMSFORD - Stedman & Concord Sts.	23,400	11,700	11,700	46,800
DRACUT - Mammouth Rd.	20,100	10,050	10,050	40,200
EVERETT - Tileston, Second, Third Sts., Springvale Ave. & Broadway	30,000	15,000	15,000	60,000
FRAMINGHAM - Elm St., Water St., & Old Conn. Path	38,600	19,300	19,300	77,200
FRAMINGHAM - Cochituate Rd. & Speen St.	12,500	---	12,500	25,000
GROTON - West Groton Rd.	15,400	7,700	7,700	30,800
HOLLISTON -Fiske St. & Wash. St.	11,000	5,500	5,500	22,000
HUDSON - Cox St. & Packard St.	12,800	6,400	6,400	25,600
LINCOLN - Concord Rd. & So. Great Rd.	7,800	3,900	3,900	15,600
LOWELL - Cross St. & Varnum Ave.	47,000	23,500	23,500	94,000
LOWELL - West 6th St., Riverdale, Adams, Walker, Warren, George & Charles Sts.	31,100	15,550	15,550	62,200
MALDEN - Forest & Main Sts.	41,000	20,500	20,500	82,000
MARLBORO - Stirrup Brook Parkway	23,700	11,850	11,850	47,400
MAYNARD - Main St.	15,000	7,500	7,500	30,000
NATICK - Speen St.	26,900	13,450	13,450	53,800

MIDDLESEX COUNTY

	STATE	TOWN	COUNTY	TOTAL
NEWTON - Woodward St.	31,900	15,950	19,950	63,800
READING - Lowell & Salem Sts.	17,400	8,700	8,700	34,800
SHIRLEY - Townsend Rd.	8,400	4,200	4,200	16,800
SOMERVILLE - Trull, Glenn, Parkdale Rose, Lewis Sts. Puritan, Ten Hills Rd., Warren Ave. Magnus Ave., Hinckley St.	49,000	24,500	24,500	98,000
SOMERVILLE - Harrison St., Hall Ave. Curtis Ave., Hooker Ave. Windsor Rd., Westwood Rd.	24,000	12,000	12,000	48,000
STONEHAM - Perkins St. & Spring St.	13,800	6,900	6,900	27,600
SUDBURY - Maynard Rd.	13,600	6,800	6,800	27,200
TOWNSEND - New Fitchburg Rd.	14,500	7,250	7,250	29,000
WAKEFIELD - Albion St.	20,500	10,250	10,250	41,000
WATERTOWN - Waverley Ave.	13,234	4,883	4,883	23,000
WAYLAND - Commonwealth Rd.	11,300	5,650	5,650	22,600
WESTFORD - Carlisle, Concord Rds. Hildreth St., Groton Rd.	17,200	8,600	8,600	34,400
WESTON - North Ave.	11,500	5,750	5,750	23,000
WILMINGTON - Concord Federal Salem & Church Sts.	15,200	7,600	7,600	30,400
WINCHESTER - Ridge St.	19,500	9,750	9,750	39,000
TOTALS	776,414	377,793	395,153	1,549,360

NORFOLK COUNTY

	STATE	TOWN	COUNTY	TOTAL
BRAINTREE - Union & Pearl Sts.	23,000	11,500	11,500	46,000
BROOKLINE - Beacon St.	5,000	2,500	2,500	10,000
CANTON - Randolph St.	13,000	6,500	6,500	26,000
COHASSET - Forest Ave.	8,000	4,000	4,000	16,000
DOVER - Centre St.	8,000	4,000	4,000	16,000
FOXBORO - Oak & Sand Sts.	6,500	3,250	3,250	13,000
FRANKLIN - Grove St. & Pond St.	14,000	7,000	7,000	28,000
HOLBROOK - Pine St.	16,000	8,000	8,000	32,000
MEDFIELD - Springfield High & South Sts.	22,000	11,000	11,000	44,000
MEDWAY - Winthrop St.	8,000	4,000	4,000	16,000
MILTON - Randolph Ave.	32,000	16,000	16,000	64,000
NORFOLK - Park St.	6,000	3,000	3,000	12,000
NORWOOD - Nichols St. & Summer St.	19,000	9,500	9,500	38,000
PLAINVILLE - Taunton St.	6,000	3,000	3,000	12,000
QUINCY - Quarry St.	170,000	85,000	85,000	340,000
SHARON - Bay Rd.	15,000	7,500	7,500	30,000
STOUGHTON - Sumner St.	15,000	7,500	7,500	30,000
WALPOLE - North St.	12,500	6,250	6,250	25,000
WESTWOOD - High St. & Hart Ford St.	10,000	5,000	5,000	20,000
WRENTHAM - Shears St. & West St.	7,000	3,500	3,500	14,000
TOTALS	416,000	208,000	208,000	832,000

PLYMOUTH COUNTY

	STATE	TOWN	COUNTY	TOTAL
ABINGTON - Adams & Groveland St.	11,000	5,500	5,500	22,000
BRIDGEWATER - Pleasant St.	18,000	9,000	9,000	36,000
DUXBURY - Franklin St.	14,000	7,000	7,000	28,000
EAST BRIDGEWATER - Highland St.	11,500	5,750	5,750	23,000
HANOVER - Old Washington St.	8,000	4,000	4,000	16,000
HANOVER - Water St. & Old Wash. St.	10,000	5,000	5,000	20,000
HINGHAM - South St.	20,000	10,000	10,000	40,000
KINGSTON - Lake St.	430	215	215	860
MARION - Point Rd. & Front St.	6,000	3,000	3,000	12,000
MARSHFIELD - Ocean St. & Webster St.	17,000	8,500	8,500	34,000
MATTAPOISETT - Neck Rd. & Angelica Ave.	7,000	3,500	3,500	14,000
MIDDLEBORO - Jackson St. & No. Main St.	16,000	8,000	8,000	32,000
NORWELL - East Main & West Main Sts.	12,000	6,000	6,000	24,000
PEMBROKE - School St.	11,000	5,500	5,500	22,000
PLYMOUTH - White Horse Rd. & Taylor Ave.	11,000	5,500	5,500	22,000
PLYMPTON - County Road	16,000	8,000	8,000	32,000
ROCHESTER - New Bedford Rd.	13,000	6,500	6,500	26,000
ROCKLAND - Plain St.	12,500	6,250	6,250	25,000
SCITUATE - Kent St. & Driftway	58,000	29,000	29,000	116,000
WAREHAM - Cromeset Rd.	22,000	11,000	11,000	44,000
TOTALS	294,430	147,215	147,215	588,860

SUFFOLK COUNTY

	STATE	TOWN	COUNTY	TOTAL
BOSTON - Painting & Repair of Sullivan Square	27,000	27,000	---	54,000
BOSTON - Washington St. & Winship St.	40,000	40,000	---	80,000
BOSTON - Dorchester Ave.	25,500	25,500	---	51,000
BOSTON - Amory St.	45,000	45,000	---	90,000
BOSTON - American Legion Highway	87,500	87,500	---	175,000
BOSTON - Park St. (Dorchester)	22,500	22,500	---	45,000
BOSTON - Harvard St. (Dorchester)	55,000	55,000	---	110,000
BOSTON - Columbia Rd.	42,500	42,500	---	85,000
CHELSEA - Hillside Ave. & Crest Ave.	59,400	6,600	---	66,000
WINTHROP - Cliff Ave., Shirley St. Court Rd.	12,000	12,000	---	24,000
TOTALS	416,400	363,600	---	780,000

WORCESTER COUNTY

	STATE	TOWN	COUNTY	TOTAL
ATHOL - Silver Lake St.	20,000	10,000	10,000	40,000
BARRE - South Barre Rd.	10,000	5,000	5,000	20,000
BARRE - South St.	6,000	3,000	3,000	12,000
BERLIN - Boylston Rd.	15,000	7,500	7,500	30,000
BLACKSTONE - Federal St.	4,200	2,100	2,100	8,400
BOYLSTON - Central St.	6,000	3,000	3,000	12,000
BROOKFIELD - Rice Corner Cross Rd.	6,000	3,000	3,000	12,000
CHARLTON - Northside Turnpike.	12,000	6,000	6,000	24,000
CLINTON - Main St. & High St.	4,500	2,250	2,250	9,000
CLINTON - Main St. & High St.	12,000	6,000	6,000	24,000
DOUGLAS - Gilboa St.	8,000	4,000	4,000	16,000
EAST BROOKFIELD - North St.	4,000	2,000	2,000	8,000
FITCHBURG - Falulah Rd.	25,000	12,500	12,500	50,000
GRAFTON - Old Westboro Rd.	3,000	1,500	1,500	6,000
HARDWICK - Meilus Bridge	2,500	1,250	1,250	5,000
HUBBARDSTON - New Westminster Rd. & Depot St.	8,000	4,000	4,000	16,000
LANCASTER - Main St.	14,000	7,000	7,000	28,000
MILLBURY - Greenwood St.	500	250	250	1,000
MILLBURY - North Main St.	2,500	1,250	1,250	5,000
NEW BRAINTREE - Meilus Bridge	2,500	1,250	1,250	5,000
NORTHBORO - River St. Bridge	12,000	6,000	6,000	24,000
NORTHBORO - Bartlett St.	9,500	4,750	4,750	19,000
NORTHBRIDGE - School St.	13,000	6,500	6,500	26,000
NORTH BROOKFIELD - Summer St.	12,000	6,000	6,000	24,000
OAKHAM - New Braintree Rd.	6,000	3,000	3,000	12,000
OXFORD - Joe Jenney Rd.	10,000	5,000	5,000	20,000
PAXTON - West Street	12,000	3,000	5,000	20,000
PAXTON - West Street	9,500	2,500	4,000	16,000
SOUTHBORO - Framingham Rd.	8,000	4,000	4,000	16,000
SPENCER - No. Spencer Rd.	8,000	4,000	4,000	16,000
TEMPLETON - Otter River Rd.	12,500	6,250	6,250	25,000
UPTON - Pleasant St.	3,750	1,875	1,875	7,500
UPTON - Williams Rd. & Pleasant St.	10,000	5,000	5,000	20,000
UXBRIDGE - Douglas St.	16,000	8,000	8,000	32,000
WINCHENDON - Brown St. Bridge Forestal St. & Elmwood St.	15,000	7,500	7,500	30,000
WORCESTER - Massasoit Rd.	180,000	90,000	90,000	360,000
TOTALS	502,950	246,225	249,725	998,900

other department activities

Bridge Division.....Page 76

Maintenance Division.....77

Planning Division.....82

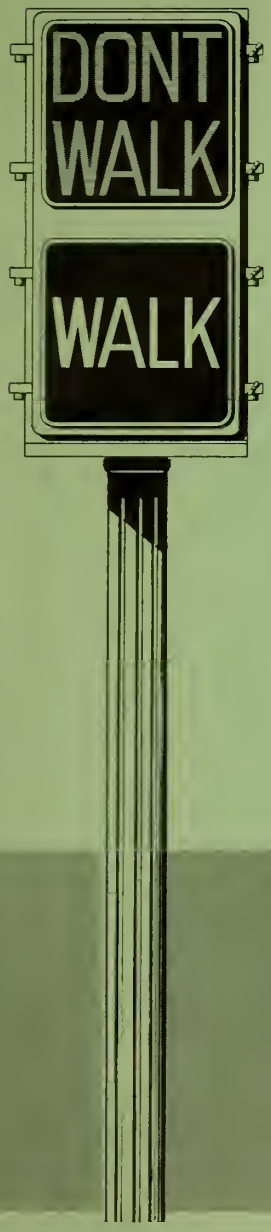
Locations and Survey.....84

Design and Construction.....85

Right of Way Division.....86

Safety Section.....87

Traffic Engineering Division.....88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bridge division

During the period from October 1, 1961 to October 1, 1962, 123 bridges, at a cost of about $21,500,000, were placed under contract for construction in 40 cities and towns of the Commonwealth.

Of the total number of bridges under contract, eighty-two are on Interstate Routes. Fifty-three are on Interstate Route 495 (the Outer Belt) and are located in Andover, Boxborough, Haverhill, Lawrence, Methuen, North Andover, Southborough and Westborough.

Fifteen bridges were placed under contract for the relocation and widening of Route 128 in Burlington, Lexington, Newton, Wellesley, Weston and Woburn.

The relocation of Route 3 to the Cape includes seven bridges under contract in Duxbury. Route 25 or the relocation of Route 28, also to the Cape, includes five bridges under contract in Middleborough and Raynham.

Chapter 90 and secondary road bridges account for the remainder of the structures under contract during the period of this report. One of these is the Coggeshall Street Bridge over the Acushnet River in Fairhaven and New Bedford.

maintenance division

The Maintenance Division is responsible for the physical maintenance and certain traffic services of 2,450 lineal miles of state highway and 1,879 bridges.

This present total represents a total of 7,760 lane miles as compared to 7,389 lane miles in 1961.

bridge maintenance

As of July 1, 1962, the Department has maintenance responsibilities for a total of 1879 bridges as compared with 1827 bridges a year ago. This increase reflects progress on the growing network of Interstate highways and other expressways in this state.

Bridge maintenance forces in each of the state's eight districts continued efforts towards cleaning, painting and maintaining bridges. Extensive renovations, requiring an amount of time, personnel and equipment exceeding the capacity of the Department, are performed by contract following advertisement for bids.

The fifteenth annual conference of District Bridge Maintenance Engineers was held in January at the District Eight Administration building in South Boston. This yearly review of progress, introduction to new materials and techniques and an interchange of ideas has made a substantial contribution to the success of the program.

snow and ice control

Snow removal on State Highways is carried out under the authority of Section 19, Chapter 81 of the General Laws as amended.

Snow removal on Town Roads is carried out under the authority of Section 11, Chapter 84 of the General Laws. During the year, the Department cooperated on plowing 494 miles of town highways. Under the Act, the highways selected were plowed in cooperation with the Towns, with 50% of the cost being borne by local agencies.

Snow and Ice Control includes, in addition to plowing snow and spreading sand and chlorides on the highway pavement, erecting snow fences to prevent drifting, cleaning waterways, patrolling of roads, removing snow from bridges, loading and hauling snow from certain structures and areas and clearing signs and signals.

An increase in sand, sodium chloride and calcium chloride was required during the 1962 fiscal year. This was attributed to the additional miles and increased number and severity of the winter's storms, resulting in unusual icing conditions due to the higher incident of freezing-thawing cycles.

The approximate overall cost of snow and ice control for the 1961-1962 winter season was $8,000,000.

During the fiscal year 1961, the Snow and Ice Control Engineer was assigned the additional duty of purchasing Government Excess Property for the Department's use. This material is purchased through the Bureau of Public Roads for 10% to 35% of the acquisition cost to the Government, depending upon the condition of the equipment or material.

The Legislature under Chapter 544 of the Acts of 1961 appropriated $412,500 for the construction of five garages (one brick and four steel). It is expected that these will be completed in the fiscal year 1963. Bids have been opened for construction of two steel garages in Bridgewater and Goshen and a brick structure in Northboro.

EQUIPMENT

The equipment Section of the Maintenance Division was added on April 12, 1961. Creation of this new section brought immediate savings as the result of a survey of all Department-owned equipment. Surplus equipment from one District is transferred to other areas, thus assuring maximum usage.

The Equipment Section of the Maintenance Manual has been revised after a study of Basic Equipment requirements on a State and District wide basis including the requirements for Highway Maintenance, Highway Repair, Bridge Maintenance, Tree and Equipment Crews. It is proposed to increase the Department owned equipment up to the Basic Equipment requirements during the next five years. The increased total of lane miles of State Highway call for 87 Highway Repair Foremen, 29 Highway Maintenance Foremen and 19 Supervising Tree Surgeons.

The following new equipment has been purchased during the past year: 4 Infra Red Heaters; 7-Four wheel Drive Front End Loaders; 3 Street Sweepers; 1 Vacuum Sweeper; 1 Tower Truck; 3 Sand Blasting Outfits; 7 Paint Spraying Outfits; 8 Drill Presses (Government Surplus); 2 Snow Units (Replacements); 23 Sanders (Replacements); 24 Chipping Hammers; 10 Welding Machines (Government Surplus); and 2 Portable Sand Blasting Outfits.

roadside development

Contract activities carried on under the Maintenance Division Roadside Development Section consists of removal, trimming, planting and care of trees as well as grass mowing.

TREE REMOVAL

2,489 dead, dangerous and/or diseased trees were removed under contract from all State highways during the 1962 fiscal year. Final analysis of the previous year's contract removal of 2,256 trees indicated that this State's greatest single tree specie loss continues to be Elm which represented 41.9% of our total loss. Maple trees were second with a 26.3 percentage.

TREE PLANTING

The planting of 1,020 hardwood, shade and flowering trees and 84,170 evergreen seedlings on various State highway locations was accomplished under 6 contracts. This annual program is designed to replace, in part, tree losses by storm, disease and normal mortality. Evergreen seedling planting for the prevention of erosion and reduction of grassed areas (which are more costly to maintain), has become a major function under this program.

SOIL STERILANT AND CUSTOM HYDRAULIC SPRAYING

Hydraulic Soil Sterilant spraying for elimination of all vegetative growth from around approximately 330 miles of guard rail was carried on in all Districts. This process eliminates the need for hand trimming of grass at treated guard rail locations.

Coupled with this is Custom hydraulic spraying for eradication of poison ivy, undesirable brush and obnoxious hard-to-kill weed growths.

PREVENTIVE ROADSIDE MAINTENANCE PLANTING

The master plan for developing preventive maintenance and safety into the 16,000 acres of land that border State highways, which began a few years ago, is being continued through mulching and planting of many areas throughout the State with over 50 species of seedlings, shrubs, ground covers, natural growth sods and trees.

This program combines economy, safety and beautification.

GROWTH INHIBITOR MALEIC HYDRAZILDE (M.H.30) SPRAY

Results of last year's application of growth inhibitor chemical spraying of 2,790 acres of roadside turf area on 65 miles of highway, Route 9, Brookline to Worcester, and Route 128 from Route 9, Wellesley to Route 1 Westwood, gave such encouraging results towards reduced mowing costs, that the Department has continued this chemical spray application for another year's critical observation of potential results.

CONTRACT TRAVEL TRASH COLLECTION

The Department for its second year has awarded four contracts for the collection and disposal of travel trash along our highways.

Last year's pilot contracts covering 106.8 miles of highway location in the Cape Cod and Southeastern area of the State where summer travel is normally heavy, have remained the same with the exception of the Route 128, Weymouth, Westwood and Dedham contract which this year requires the contractor to furnish steel containers which are automatically emptied and disinfected by a packer type truck.

PROPERTY RENTALS

The Department's Disaster Plan is being completely revised with particular emphasis focused on the current status of Department-owned equipment by districts which can be used in an emergency. This means making the most effective use of its services and equipment in time of a natural or enemy caused disaster.

One of the many responsibilities of this section is the processing of rentals of property required and used by the Department for administration purposes, foreman's headquarters and storage areas. There are currently 83 such rentals, 24 of which are on a lease basis at a cost of $62,558.00 per year. The other 59 properties are rented on a tenant-at-will basis at a cost of $77,014.00 per year. In addition to the above, $24,626,00 is spent for the garaging of state-owned passenger cars, carryalls, dump trucks, and odd pieces of equipment in public or private garages, resulting in a grand total of $164,198.00 spent for rentals.

REST AREAS

Although the principal function of Rest Areas on State Highways is utilitarian, continuing efforts make these areas things of natural beauty, and a constant joy to the motorist.

Additional picnic tables at many locations have attracted more family groups than ever before. The opening of the new information booths at six additional locations in 1963 will add to their value for tourists. But first in importance, the rest areas provide a place where the motorist can pull off the road to break the monotony of expressway driving, and so make the highways safer for himself and others.

ROADSIDE
REST AREA

the planning division

SPECIFICATIONS AND MANUALS

Work on the revision and up-dating of the Standard Specifications for Highways and Bridges, and all departmental instruction manuals, has progressed to the point where all primary drafts are substantially complete and intermediate drafts are well under way. A new edition of the Right of Way manual was published in June 1962.

MODERNIZATION OF REPRODUCTION SECTION

A complete modernization of the Reproduction Section is being accomplished with the installation of new equipment, which will make the reproduction facilities of this Department second to none in this part of the country. High speed reproductions of direct and half size contract plans, specifications, and other documents, through the use of Xerox equipment, in conjunction with offset duplication will result in a substantial reduction in reproduction costs while maintaining the increased volume of prints required for the expanded highway program.

MICROFILMING OF PLANS AND RECORDS

The Department's obsolete microfilming equipment is being completely replaced with the most modern type of equipment available. Additional larger equipment is being installed which will now permit the microfilming of engineering drawings and plans. These records will be maintained on film in a central location, and will eliminate the need for dispersed storage areas for the huge volumes of accumulated material. In a matter of minutes, any filmed record can be reproduced with prints that are equal to the original source document.

GENERAL

During the past year, in co-operation with local, Federal and International Agencies, the Planning Division has served as host to visiting engineers from Spain, Sudan, Syria, Indonesia and Dominica, British West Indies. These men are department heads in their own countries and have excellent engineering backgrounds.

A complete system for the prequalification of Contractors has been devised by the Planning Division, to implement recent legislative action which will make the prequalification of Contractors obligatory.

Ahmed Khalafalla, Roads Engineer, Ministry of Works of the Republic of Sudan, with Commissioner Ricciardi (left), and Chief Engineer Edward J. McCarthy (right)

RESEARCH AND DEVELOPMENT

Research projects are being conducted by the Department and in cooperation with other agencies through agreements jointly sponsored and financed by the Department and the U.S. Bureau of Public Roads.

The Massachusetts Institute of Technology is currently performing several research studies such as:

1. The use of advanced scientific methods and electronic computers to problems of highway engineering, including planning, locations, designs, construction and operation of highways.
2. "Highway Transportation Demand". A study of various factors contributing to the driver's choice of routes including travel time, distance, delays, harzards and convenience. The data to be used to develop techniques for estimating future traffic volume and the assignment thereof to highway facilities.
3. "Physical Research on Flexible Pavement Materials and Construction Methods." A research concerned with the physical properties of asphalt and the development of quality controls which will insure safer, longer lasting and smoother riding pavements, together with economy of construction and maintenance.
4. Annual studies since 1950 through Legislative grants in research confined principally to paving materials, traffic engineering, and studies of bridge vibrations.

The University of Massachusetts is conducting a comprehensive study to prevent the erosion of slopes along the highways and an economic method for the stabilization and control of drifting sand encountered on Cape Cod.

Other co-operative research studies in progress include, "North Terminal Area Study", "Socio-Economic Impact of Highways","Highway Research Correlation", "Seismic Surveys and Materials Mapping", "Investigation and Analysis of Floods from Small Drainage Areas in Massachusetts", and "Geologic and Mineral Resource Investigation in Massachusetts", the three latter being carried on through agreement with the U.S. Geological Survey.

location and surveys

This section with its numerous sub-sections namely; the Location, Survey, Geodetic Survey, Seismic Survey and Photogrammetric Section is involved in many phases of the development of our modern Expressways.

The Location Section is responsible for determining the ultimate location of the proposed facility. Working closely with our traffic engineers, the needs and desires of the traveling public are determined in regards to a particular expressway. Alternate locations are studied first on U.S. Geological Survey Topographic maps, and later on larger scale photogrammetric maps on which the basic design of the proposed expressway is shown. The location section then works closely with the Right-of-Way Engineer to determine land values along the alternate routes and with the Traffic engineers to determine the traffic volumes assigned to, and the road user benefits to be realized from each route studied.

Public hearings are conducted, and the comments and suggestions made are analyzed. A request for approval of a final location is then sent to the Bureau of Public Roads.

SURVEY SECTION

Once the final location is determined, the Survey Section commences the first of the many functions it will undertake throughout the development of the highway.

All physical data necessary within the proposed highway taking must be located. The topography of the ground must be determined, property lines, names of property owners, street lines, public utilities and base lines established.

When the highway is put under construction, the survey section must layout the highway as it is to be constructed, including culverts, drainage systems, bridges, ramps and roadways.

Upon the completion of the highway, the survey section must resurvey the highway to determine the quantity of each type of material moved and used in its construction.

During construction of the one-mile Taunton River Bridge between Fall River and Somerset, the complex survey for staking of piers was overcome. This entailed towers opposite every other pier and use of pre-tested piano wire and weights looped over a bicycle wheel mounted on stands.

Resorting to the use of the latest equipment to aid them in their work, the Department has provided 14 sets of Walkie-Talkie for use in survey parties. This permits instant communication, especially on heavily travelled high speed highways.

SEISMIC SURVEY

This section working closely with the U.S. Geological Survey investigates sub-surface conditions in areas of possible excavations. It also arranges for Geological maps along proposed routes.

PHOTOGRAMMETRIC SECTION

Aerial photography, topographic and planimetric maps, profiles and such other data are provided by the Photogrammetry Section.. This information is for use in the Location, Design and such other Divisions, as needed.

A new method employing photogrammetry in preparing record plans of highways built has been introduced this year. Recently, extensive use of cronoflex prints, has been made. These enlargements are made from aerial photographs on a base that can be printed by a conventional blue-print machine.

AERIAL SURVEYS
JULY 1, 1961 TO JUNE 30, 1962

Reconnaissance at a scale of 1" = 200'

Route 2, Templeton - Gardner	8.2	Sq. mi.
Route I-95, Revere to Danvers	19.1	" "
Route 140, Gardner to Winchendon	7.3	" "
Route I-91, Springfield-Holyoke	3.5	" "
Route 9, West Brookfield to Ware	4.9	" "
Route 128, Norwell to Hull, with Connector to No. Scituate	12.3	" "
Route 113, Dracut - Methuen	14.7	" "
Monroe, Relocation of Kingsley Hill Road	3.8	" "
Route 7, Pittsfield - Lanesboro	9.4	" "
TOTAL	83.2	Sq. mi.

Reconnaissance at a scale of 1"=100'

Route I-91, Springfield	1.9	Sq. mi.
Route 12, Webster - Oxford	4.4	" "
TOTAL	6.3	Sq. mi.

design and construction

Once location is determined by the Location and Survey Division of the Department of Public Works, the Highway and Structures Division designs and estimates the cost of the highway.

Personnel from this division set basic design, arrange for sub-surface investigations, prepare contract plans, estimates and layout plans.

Procedures are constantly revised and streamlined to implement progressive moves undertaken by the Department.

The Department now requires, in its contracts with Consultant Bridge Engineers, insurance assuring the restoration of any plans, drawings, computations, fields notes or other similar data in the event of loss or destruction. Consultant Design Engineers are also required to carry a professional service liability insurance. State personnel would be thus protected from suits resulting from errors and omissions in work performed. Massachusetts and Connecticut appear to be the only States having this requirement.

The Construction Division assumes responsibility of a project after the bids are opened and the contract is awarded. Pre-construction conferences are held with the contractor, utility representatives, and appropriate Department and Bureau of Public Road personnel in attendance to discuss the specifications, unusual conditions, the Contractor's plan and schedule of operation, and other pertinent items conducive to better job understanding. The supervision and inspection of the actual construction follows.

At the present time 60 highway & bridge contracts, 4 building contracts and 35 Roadside Development contracts are under the supervision of the Construction Division with a total money value of 143 million dollars.

DESIGN OF HIGHWAYS AND STRUCTURES

The construction or reconstruction of any bridge or highway requires the preparation of complete plans, estimates, contract documents and layout plans in order that bids can be obtained from construction contractors.

This work of preparing contract plans and documents is the responsibility of the Highway Design and Bridge Design Sections which are under the Highway and Structures Engineer.

After approval of a general location for a highway is obtained, the Design Sections develop the design for the roadways, bridges, drainage, right of way and relocation of utilities. Borings are obtained at proposed bridge sites and at locations along the highway where ledge or unsuitable soil conditions may be encountered. All designs of highways built under the Federal Aid Highway Program are coordinated with the Bureau of Public Roads. Final approval must be obtained from the Bureau before bids are solicited. As the design progresses, representatives from the local municipalities and public utility companies are contacted to coordinate the work and as far as possible to comply with their proposed future plans of development.

At the present time, plans are being prepared for State highway construction projects costing over $100,000,000 as well as for numerous sections of town roads being reconstructed under the Chapter 90 program and miscellaneous contracts for maintenance and improvement of smaller sections of the State highway system.

right-of-way

During the past year, the vital importance of the Department's right-of-way acquisition activity was recognized by the Legislature, when it established the position of Assistant Chief Engineer for Right-of-Way Acquisition for the head of one of the four primary divisions of the Highway Department.

The acquisition program has included the investigation, appraisal and negotiation of properties at an annual rate of approximately 1500 cases with total damage costs of about $15,000,000. The awards paid ranged from a nominal amount of $1 in some instances to a payment in excess of $2,500,000 for a large special type industrial plant.

Most of the properties encountered are the typical undeveloped, agricultural, residential, commercial or industrial types. However, the division has analyzed and appraised damages caused to such special properties as: cemeteries, parks, urban redevelopment projects, airports, golf courses, water supplies, sewage treatment plants, gas plants, incinerators, amusement parks, public housing units, animal hospitals, city halls, schools, colleges, churches, shopping centers, drive-in theaters, motels, railroad yards, quarries, and cranberry bogs.

One of the primary objectives toward which much effort has been directed is the increase of "lead time" for property acquisition and site clearance. Lead time is the period between the beginning of right-of-way acquisition and the start of actual construction. Given a reasonable period of lead time, the right-of-way work can be carried on in an orderly, efficient and effective manner, and the hardships to the occupants of the affected properties kept to a minimum.

Within the Right-of-Way Division there has been established a "Relocation Advisory Assistance Group" whose duties will be to provide all possible assistance to those families and business units displaced as a result of the highway construction. The Group has been active in meeting with heads of municipalities, agencies and groups of occupants being displaced to help coordinate the various elements of the assistance program.

A bill providing for relocation payments to displaced families and businesses was drafted by the Right-of-Way Division and filed by the Department for the consideration of the Legislature. Federal participation in the cost of such payments is now available under the terms of the Federal Highway Act.

The Right-of-Way Division maintains liaison with the office of the Attorney General and assists in the preparation and trials of land damage cases.

A "Land Economics" or "Severance Damage Study" has been undertaken by the Division. The study is a comprehensive investigation of the actual effect of land takings and highway construction on the remaining portions of properties where only a portion of the owner's land was taken. The findings of the study will be of great benefit to appraisers who are faced with similar problems in which they must predict the effects of the taking on the remainder. Federal participation of 67½% of the cost of such studies is authorized.

Recently, in order to assure that every precaution is taken to avoid conflicts of interest by appraisers, the Division adopted a new form of affidavit which must be sworn to by the appraiser of each property as a part of his report.

safety section

The Safety Section reports continuing progress in safety measures among DPW personnel. The following report covers the period of the fiscal year from July 1, 1961 to June 30, 1962.

For the number of man-hours worked, and the number of vehicle miles driven by DPW employees, the record remains an admirable one. Over a period of ten years, the incidence of industrial accidents has been reduced by nearly 50%.

Since 1953, no fatal accident to a DPW employee on the job has occurred. Considering the highly hazardous nature of much of the work, the record is an extraordinary one.

A total of 616 "Safe Driving" awards were presented to DPW personnel during the twelve month period.

This year Red Cross classes have brought the total of employees certified in civil defense and first aid to 1185, more than 25% of the total number of DPW employees.

traffic engineering division

The activities of the Traffic Engineering Division are divided into two main sections: Highway Planning, and General Traffic Engineering.

Highway Planning activities include sufficiency inventory studies, census and road life, field data, traffic counts, origin and destination studies, project analysis and special studies.

Sub-divisions of General Traffic Engineering include highway design, traffic control signals and flashing beacons, safety lighting, traffic signs and pavement markings, traffic regulations, accident analysis and speed control. An additional section includes radio communications, which, although not truly a traffic function is the responsibility of the Traffic Engineer, due to its electronic nature and similarity to other electronic traffic equipment.

highway planning

Traffic studies in conjunction with the traffic assignments for proposed highways continued during 1962. These included Origin and Destination Studies.

Special studies initiated or continued in 1962 include:

a. Long Range Studies of the Social and Economic Impacts of Massachusetts Highways.
b. Roadside Development Research.
c. North Terminal Area Study.
d. Run-off Research by United States Coast and Geodetic Survey.
e. Highway Data Research Program of Massachusetts Institute of Technology.
f. Central Corridor Traffic Study.

The Consultant's report on the Inner Belt was completed in 1962.

The Annual Truck Weight Study, employing portable loadometers was conducted at 13 locations throughout the State. Axle weight samples were obtained of several hundred vehicles of variable sizes traveling on Massachusetts Highways.

Forty analog digital portable traffic recorders purchased in 1961 are now in full operation throughout the State. This equipment expedites the processing of the field tapes into IBM cards and results in a traffic volume summary sheet being produced in a very short time.

Vehicle detection tests by means of overhead devices were conducted on multi-lane expressways in 1962; these included radar detectors, infra-red detectors and ultra-sonic detectors.

general traffic engineering

ACCIDENT ANALYSIS

In the Accident Analysis Section, the segregation and classification of State Highway accidents furnishes a complete record of State highway collisions.

In 1961, 20,114 accidents out of the total 83,169 state-wide collisions reported to the Registry of Motor Vehicles and occurring on State-owned highways were recorded.

Primarily, this record is used as substantiation in the preparation of reports recommending remedial measures for correcting hazardous locations by engineering methods.

Accident reports accompanied recommendations for corrective designs at numerous accident-prone locations. These resulted in such action as the installation of traffic control signals, "spot" highway illumination, special signs, additional pavement markings, and in corrective designs for existing highways.

Accident studies of a more general nature which were completed included those pertaining to accident rates, comparative studies on various highways, and records furnished to the Federal Bureau of Public Roads on Interstate and adjacent highways for an Accident Research Project.

Accident Records were submitted to the Division of Public Safety for purposes of selective enforcement and to the Public Relations Division for press releases.

SIGNALS

This section pertains to the installation and maintenance of traffic control signals, flashing beacons, and safety lighting.

The total number of traffic control signal installations existing at the end of the fiscal year (1961 to 1962) plus the number of signals installed during the last fiscal year were the following:

1.	Total signal installations completed during fiscal year.	21
2.	Total signal installations existing on June 30, 1962.	548
3.	Total flashing beacon installations completed during fiscal year.	122
4.	Total flashing beacon installations existing on June 30, 1962.	776

The installation of 12 inch lenses was extended by revisions made at 11 additional signalized intersections. The larger lenses have been approved at locations, where they were deemed necessary, because of their greater target value.

At ten intersections revisions were made in existing signals.

With the Stage Construction of the Interstate System and other expressways, it is vitally necessary to forewarn high speed traffic of the end or partial closing of the highway at turning points. This year 36 lighted barrier installations were completed at these points making a total of 147 such installations in service on June 30, 1962.

In order to reduce hazard for night drivers, Safety Lighting was installed at 10 additional locations.

SIGNS AND PAVEMENT MARKINGS

With the introduction of the revised Uniform Traffic Control Manual published by the Bureau of Public Roads, it became mandatory (before consideration could be given for adoption) that a comprehensive study be made of required changes in the Department's traffic sign and marking standards.

This was accomplished by holding several meetings in Boston and in the Districts which were attended by traffic personnel and resulted in decisions being made and action being taken as follows:

A. Currently 40% of the Department's guide signs, when in need of replacing, have been changed to green background with white lettering.

B. Current Department policy restricts locality destinations on guide signs to two, on the larger type signs, and one on the smaller type signs. The purpose of this restriction is greater legibility in the interest of safety.

C. An initial duty of the Department under the new standards is the painting of yellow lines as follows:

   1. Double center lines on multi-lane pavements.
   2. No passing barrier lines at:
      (a) No passing zones on two and three lane roads.
      (b) Pavement width transitions.
      (c) Approaches to obstructions which must be passed on the right.
      (d) Approaches to railroad crossings.
      (e) On islands in the line of traffic.

At the termination of the year's pavement marking program 6,500 miles of yellow line will have been applied on State highways.

D. Another duty of the Department is the painting of six inch lane lines on limited access and other expressways. To date, 650 miles of the six inch line has been applied this year.

E. A third duty of the Department is the painting of solid white pedestrian crosswalks and stop lines which is currently under way. These replace broken lines which were formerly standard markings.

Shoulder and edge line painting has been extended by 15% this year.

The Department's purchase of a truck type pavement-marking machine has been applying pavement lines at a rate of 8 to 10 miles an hour and has accomplished outstanding results both in terms of safety and economy, with much less inconvenience to the motorist. Since April 15, 1962, 1,200 miles of line has been applied by this machine.

The Department's program of signing and pavement marking of Interstate Highways is progressing simultaneously with the construction of each new section of Interstate Highway.

SPEED CONTROL

Under the speed control program, studies have been made extending speed zoning on the State Highways, re-checking sections of existing zoning on these highways and, on request, aiding municipalities in the preparation of regulations governing the speed of motor vehicles on municipally-owned roads.

During the fiscal year, assistance in matters pertaining to speed control was given to 51 cities and towns. In the same period, on 20 sections of State highway and on one or more streets in each of 11 municipalities, Speed Regulations were submitted by the Traffic Division for approval by the Commissioners of the Department and the Registrar of Motor Vehicles, acting jointly.

On approximately 100 miles of State highway which have already been speed-zoned, rechecks are currently being made to determine the possible need for alteration of the zoning to fit present conditions.

HIGHWAY DESIGN

Under the highway design program, plans of highways proposed for construction or reconstruction were reviewed by the Traffic Division from the standpoint of promoting both traffic safety and the efficient movement of traffic.

As a result of recommendations made on these projects, new and revised designs have been adopted by the Department.

Increased use is being made of the so-called "jug-handle" design to protect crossing traffic where left and U-turns are heavy. Another measure recommended with the purpose of protecting turning traffic at crossovers is the installation of left turn storage lanes in the median on divided highways. Installations incorporating either one or the other of these measures have been constructed or are now in the study stage.

Other means of promoting safety by reconstruction of hazardous locations have been the closing or recommended closing of certain "crossovers" in the median on Routes 1, 2, 9 and 128.

SPECIAL ACTIVITIES

During the last session of the Legislature two Bills dealing with matters important to traffic were passed into law. One, Chapter 225, provided for uniformity of all stop signs and of the stopping requirements at entrances to Through Ways and at isolated stop locations.

The other Bill which provided for control of pedestrians by local regulations was approved as Chapter 409.

As the result of the passage of Chapter 409, this Department undertook an extensive program to properly inform the municipal officials of the provisions of the law and of the procedures to be followed for its implementation.

Officials attending the meetings were strong in their expression of gratitude for the advice and assistance given by the Department.

Two other Bills introduced by this Department were acted upon favorably by the Legislature and became law in one Act, Chapter 603.

Prior to the passage of Chapter 603, this Department had no specific authority to require municipal adherence to Official Department Traffic Standards, and no direct authority to take action if a municipality failed to adhere to the terms of a Traffic Control Agreement. This is required by the Federal Bureau of Public Roads on each project where Federal Highway Funds are expended and where the completed facility is to be returned to municipal control.

Under the provisions of Chapter 603 the Department may protect its participation in Federal Highway Funds since a violation of the terms of a Traffic Control Agreement by a municipality would warrant the curtailment of Chapter 90 and Chapter 81 funds for that municipality until compliance was fulfilled.

TWO WAY RADIO COMMUNICATIONS AND ASSOCIATED ELECTRONIC DEVICES

During the past year the Department operated and maintained a state-wide two-way radio communication system. The system is licensed by the Federal Communications Commission and operated under the Rules governing the Public Safety Radio Services.

At the present time the system consists of a base station for each of the eight Engineering Districts with standby auxiliaries, a monitor control point at the Nashua Street Headquarters Building, 315 radio equipped vehicles, 2 portable stations and 3 radio relay links.

Eighteen additional mobile installations were made during the past fiscal year.

Engineering and technical services were provided to the Division of Beaches in the operation of their network, and a training program was carried on by Department personnel in radio telephone operation and procedure for rescue and supervisory personnel.

The Department staffed and maintained its six station auxiliary Civil Defense Network during State and Federal Tests and the Hurricane Season alerts. Coordination of this network's frequencies with the Department's expedites performance of the Engineering and Highway Repair Services which the Department provides for this key agency.

Low pass filters were added to the Department's equipment where necessary in order to insure compliance with the Federal Communication Commission's Directive requiring all Public Safety Service installations to convert to narrow band operation by November, 1963. Forethought in planning the system made this inexpensive operation by State Forces the only step necessary for continuous operation without the considerable outlay of capital funds for replacement equipment with which agencies operating wide band equipment are now confronted.

At the request of the American Association of State Highway Officials the Traffic Engineer continued to act as the Regional Member of the Committee on the use of Radio in State Highway Departments. One hundred and fifteen letters of comment or clearance were issued to applicants for frequencies in the Highway Maintenance Radio Service in Region 1 comprising New England and the Middle Atlantic States. This is a pre-grant requirement under Part Ten of the Federal Communication Commission's Rules and is in keeping with the Department's function as a Public Service Organization.

TELEVISION

During the past year a closed circuit television was operated by the Department in the Dewey Square Traffic Tunnel in Boston. This system provides a means of monitoring traffic conditions in the Tunnel. Transistorized equipment was added during the year with a resulting saving in operating costs. Because of the scope of the work and the necessity of maintaining this system in good order specifications were drawn by the Department and a contract for maintenance was awarded for the fiscal year.

TELLUROMETER

The tellurometer is an electronic device designed to measure distance and is particularly useful in inaccessible areas. This equipment is operated by Location and Survey crews and maintained by the radio personnel of the Department.

RADAR SPEED METERS

These electronic units have been employed in speed control studies to determine proper highway speeds for highway safety and in determining safe speed levels as they affect highway design. The equipment is maintained by Department radio personnel. During the course of the year advisory assistance in procurement, licensing and use of meters were furnished to interested State and municipal agencies.

Television Monitors in Traffic Tunnel. Each Monitor Serves Several Cameras through Automatic Sequencing

waterways and beaches

The Division of Waterways is a part of the Department of Public Works created by law with the status of a Division; the administrative head is a Director, whose immediate superior is the Commissioner of Public Works. Recently, a section of Beaches was created which is part of the Division of Waterways. The duties and powers of the Division are obtained from Chapter 91 of the General Laws.

New Seawall Protects Kenberma Section of Hull Against Ravages of High Tides

The main function of the Division is to undertake work for the improvement, maintenance and protection of rivers, harbors, tide waters and foreshores of the Commonwealth. No work is undertaken until after a public hearing is held, usually in March.

The prime factors considered in selecting projects are the general public advantage, the local interest and the importance of industrial or commercial interests. A contribution towards the cost from local interests is expected; the most recent legislation has made this mandatory, the local contribution for general construction is 50% and for dredging 25%.

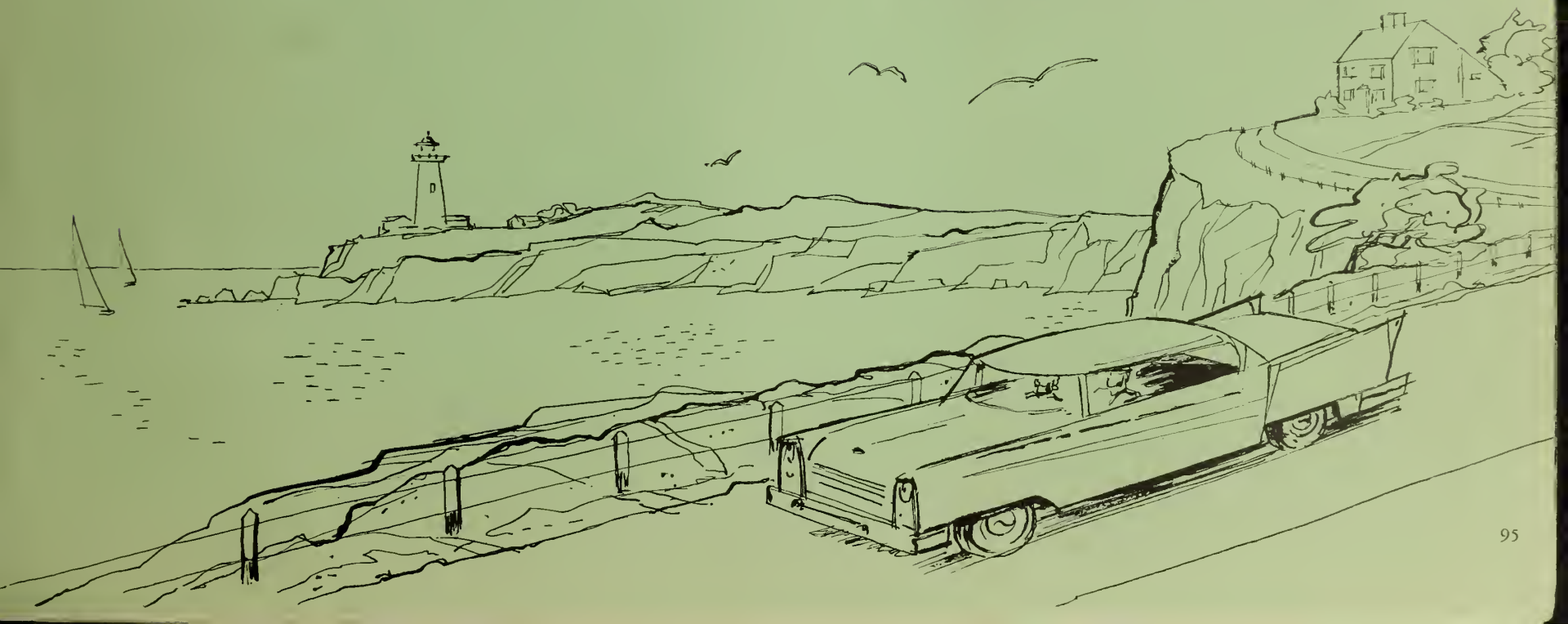
The State's share of the cost of a project is paid from appropriations of the General Court, either by Special Acts or as part of a Capital Outlay program financed by bond issue. The number of worthy projects petitioned for greatly exceeds the funds appropriated.

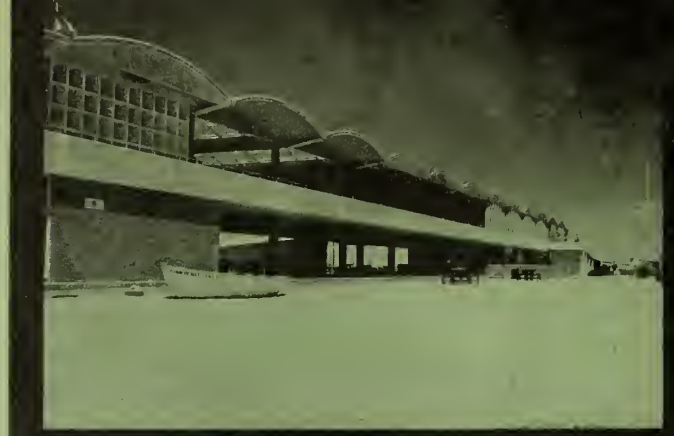
The amount of money received each year is subject to considerable variation, and due to this the projects initiated each year vary accordingly.

Secondary functions of the Division are the construction, maintenance and operation of State Piers at New Bedford, Fall River, Gloucester and Plymouth; the supervision and maintenance of Pilgrim Memorial Park (Plymouth Rock); licensing all work in tidewaters, great ponds and in improved sections of non-tidal streams; and minor duties such as maintaining the State boundary markers and removal of sunken vessels, derelicts and marooned dead aquatic mammals.

The Beaches Section of the Division receives separate funds. Normal maintenance and operation are its largest expense. Capital improvements are subject entirely to legislative fiat.

Reconstruction of State Pier, New Bedford





salisbury

scusset

state beaches offer

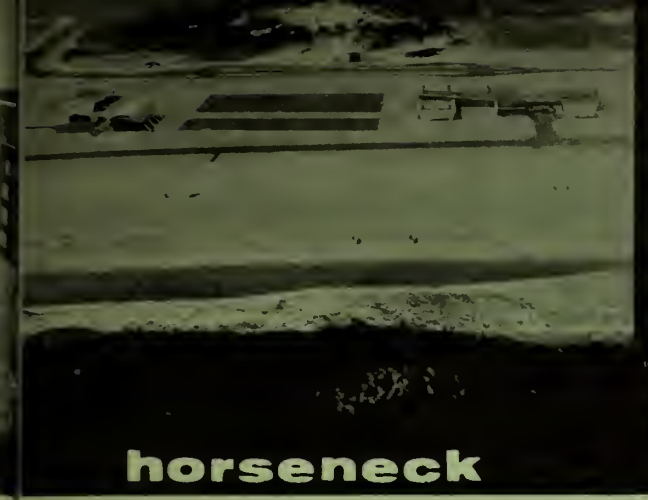
SALISBURY STATE BEACH RESERVATION--Salisbury, consists of 521 acres with four miles of shorefront property. The only state beach available to the residents of the Merrimack Valley. The beach is equipped with a modern bathhouse and pavilion, a snack bar, first aid room, parking facilities for over 3,000 vehicles, public toilets, administration office, lifeguard quarters, showers and dressing rooms, picnic tables, beach chairs, and umbrellas, fishing and boating.

Plans have been formulated to complete the camping grounds and for the construction of a marina on the Black Rock Creek, additional parking areas, picnic facilities (fireplaces, tables, clam bake pits) and athletic fields.

SCUSSET BEACH RESERVATION--Scusset, on the northeast tip of the Cape Cod Canal. Noted for its fine fishing and picnic facilities. An hour's drive from the Greater Boston area.

Plans are underway for a boat launching ramp and overnight camping facilities and to increase the present number of fireplaces and picnic tables.

Fishing from Jetty --- Salisbury Beach



horseneck

provincetown

fort phoenix

diversified recreation

HORSENECK BEACH RESERVATION--Westport. New access road now connects the beach with Route 6. The Reservation includes 514 acres of land and three miles of sandy beach frontage with a gentle slope and warm water.

Plans for development include additional picnic facilities (tables, fire places and clam bake facilities). Projected plans call for development of the Gooseberry Neck Area, a 200-acre peninsula, into a haven for campers, and fishermen upon availability of funds.

PROVINCETOWN STATE BEACH AND THE PROVINCE LANDS--Provincetown. This area is noted for its quaint Cape Cod atmosphere and natural simple scenic beauty of the terrain and foliage.

FORT PHOENIX BEACH--Fairhaven. Newly-acquired, open for the first time under state authority in July of 1962. $250,000 has been appropriated for construction of a bathhouse and facilities. This beach is ideal for youngsters (it is very warm and calm). Swimming instructions a feature.

public beaches

Fort Phoenix Beach as Acquired

Cleanup Campaign Begins, with Temporary Quarters for Life Guards and First Aid Station

In preparation for its formal opening July 1, 1962, three contracts were awarded lowest bidders this spring and the previous fall for demolition of an old bathhouse, recreation building, grading and sanding of beach frontage at Fort Phoenix.

A special capital outlay of a quarter-million dollars was granted the Department for construction of an Administration building and associated facilities, bathhouse, public comfort station and snack bar. Work is expected to get underway in spring of 1963.

Increased facilities and attractions at the Department's beaches have resulted in a progressive rise in revenue for the Commonwealth.

Resulting from public need, an additional hundred picnic tables were placed at various beaches. Officially, the beaches are opened from the middle of June until Labor Day.

The record of no drownings since their inception, nine years ago, is a proud one that has been established as a result of precautionary methods employed. Each beach is adequately staffed by lifeguards, registered nurses and first-aid facilities.

The guards, on duty seven days a week, are selected after having passed a rigorous physical and life-saving test. They are trained in the use of radio communications and walkie-talkies along with other up-to-date equipment.

Maintenance, a continual process at all beaches, calls for a small, efficient full-time crew. Major functions are handled by outside contractors on a competitive bidding process. Volume of construction is dependent primarily upon appropriations of the Legislature.

First Aid Drills Protect Beach Division's Great Safety Record

The Department has acquired two new mechanized litter-lifts which are now in use and have proven their value. These machines can be operated on a sandy beach, in grass and parking areas.

A savings is realized as a result of a heated winter workshop and winter headquarters at Salisbury Beach. Here, lifeguard stands, dories, ring buoys, etc., are repaired and manufactured. Where formerly motorized equipment was stored in unheated buildings or parked outside during the winter months, they are now kept indoors thus eliminating costly maintenance caused by sand and salt air corrosion.

In keeping with the President's order for additional and improved recreational facilities to augment his National Health Program, the Department has promulgated long range plans for acquisition of additional State Public Beaches and further development of our present beach system, especially in the field of group athletics; viz: ball fields, swimming meets, swimming classes, outing facilities, etc.

PROJECTS ADVERTISED BY THE DIVISION OF WATERWAYS

FROM NOVEMBER 1961 TO NOVEMBER 1962

CONTRACT	CITY/TOWN	LOCATION	TYPE OF WORK	EST. COST
2239	Adams	Pine Street Brook	Stream Improvements	$ 30,850.00
*2054	Andover	Rogers Brook	" "	200,000.00
*2358	Beverly	Lynch Park	Seawall Repairs	10,000.00
2123	Chicopee	Vic.McKinstry Ave.	Pressure Drain	376,005.00
*2124	Dedham	Wigwam Brook	Stream Improvements	400,000.00
*2326	Dennis	Sesuit Harbor	Mooring Facilities	26,000.00
*2357	Duxbury	Duxbury Beach	Seawall	20,000.00
57	Fairhaven	Fort Phoenix	Beach Improvements	2,900.00
2335	Fairhaven	Fort Phoenix	Restoration	711.00
2327	Fairhaven	Sconticut Neck	Boat Ramp	5,850.00
2344	Gay Head	Menemsha Creek	Dredging	7,385.00
2298	Harwich	Wychmere Harbor	Pier Construction	14,820.00
2324	Marblehead	Commercial St.	Wharf Repairs	9,930.00
2175	Milton	Pine Tree Brook	Culvert	83,510.00
*2316	Oak Bluffs	East Chop	Shore Protection	6,000.00
2350	Plymouth	Town Pier	Deck Repairs	2,370.00
2078	Quincy	Shellton Road	Shore Protection	18,935.00
*2292	Randolph	Mary Lee Brook	Stream Improvements	60,000.00
2363	Rockport	Rockport Harbor	Dredging	50,000.00
2351	Scituate	Humarock & N. Scituate	Shore Protection	59,816.00
2319	Wareham	Tremont Pond Dam	Reconstruction	16,000.00
56	Westport	Horseneck Beach	Repairs	1,275.00
2240	Williamstown	Green River	Stream Improvements	25,000.00
2213	Worcester	Marshall Pond & Mill Brook	Culvert & Drainage	967,835.00
2312	Yarmouth	Englewood	Shore Protection	6,000.00
2256	Dennis	W. Dennis Beach	Bulkhead	18,352.00
2325	Dennis	Hobscusset Point	Shore Protection	28,087.00
2195	Edgartown & Oak Bluffs	Sengekontacket Pond	Stone Jetties	61,642.00
2287	Edgartown & Oak Bluffs	Sengekontacket Pond	Stone Jetties	54,719.00
2327	Fairhaven	Sconticut Neck	Boat Ramp	5,850.00
2335	Fairhaven	Fort Phoenix	Beach Development	711.00
2291	Falmouth	Old Silver Beach	Beach Development	17,282.00
2021	Franklin	Spruce Pond Brook	Drainage	150,417.00
2344	Gay Head	Menemsha Inlet	Dredging	7,360.00
2250	Gloucester	Fish Pier	Rehabilitation of Refrig. Facilities	151,590.00
2253	Grafton	Stringer, Irish & Hovey Dams	Spillway Modifications	152,095.00

CONTRACT	CITY/TOWN	LOCATION	TYPE OF WORK	EST. COST
2264	Harwich	Witchmere & Allen Harbors	Dredging	$ 106,456.00
2329	Hull	Gun Rock	Shore Protection	16,661.00
2302	Hull	Kenberma	Seawalls	660,505.00
2115	Lowell	Merrimack River	Bank Protection	290,377.00
2283	Marblehead	Riverhead Beach	Boat Ramp	2,851.00
2324	Marblehead	Commercial St.	Town Wharf Repairs	9,045.00
2230	Nahant	Forty Steps Beach	Bank Protection	35,605.00
2286	New Bedford	State Pier	Repairs	104,665.00
2148	Northbridge	Blackstone River	Bank Protection	11,746.00
2140	Orleans	Rock Harbor	Bulkhead	9,670.00
2154	Orleans	Rock Harbor	Town Wharf Repairs	10,998.00
2350	Plymouth	State Pier	Repairs to deck	2,370.00
2078	Quincy	Shellton Road	Shore Protection	18,935.00
2313	Revere	Sales Creek	Channel Improvements	7,650.00
2066	Russell	Westfield River & Potash Brook	Stream Improvements	57,427.00
2164	Springfield	No. of Sixteen Acres Pond	Drainage	50,962.00
1976	Stockbridge	Housatonic River	Stream Improvements	20,735.00
2262	Wareham	Onset Beach	Seawall	9,721.00
2099	Weymouth	Beach Road	Shore Protection	6,395.00
2243	Winchester	Aberjona River & Wedge & Judkins Pond	Stream Improvements	29,050.00
2108	Worcester	West Tatnuck Brook	Stream Improvements	411,497.00
2339	Adams	Pine St. Brook	Stream Improvements	30,850.00
2361	Barnstable	Hyannis Harbor	Bulkhead	135,000.00
2123	Chicopee	McKinstry Ave.	Drainage	376,005.00
2334	Danvers	Porter River	Dredging	72,660.00
2298	Harwich	Wychmere Harbor	Pier & Bulkhead	14,820.00
2342	Ipswich	Town Wharf	Seawall & Boat ramp	26,945.00
2175	Milton	Pine Tree Brook	Culvert & Channel Excavation	83,510.00
2227	New Bedford	Acushnet River	Harbor Improvements	574,778.00
2363	Rockport	Rockport Harbor	Dredging	50,000.00
2206	Salem	Forest River	Tide Gates	82,314.00
2351	Scituate	Humarock & No. Scituate Beaches	Shore Protection	59.816.00
2319	Wareham	Tremont Pond	Dam Repairs	16,000.00
2163	Weymouth	Back River & Herring Brook	Stream Improvements	375,370.00

CONTRACT	CITY/TOWN	LOCATION	TYPE OF WORK	EST. COST
2356	Winthrop	Donovan Beach & Lewis Lake	Tidegates	$ 40,000.00
2213	Worcester	Marshall Pond & Mill Brook	Culvert & Drainage	967,835.00
2321	Yarmouth	Parkers River	Jetty Repairs	8,580.00
			TOTAL	$7,837,101.00

*Denotes projects which may reasonably be expected to be advertised between time of compilation of list and 11/30/62